

IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF PENNSYLVANIA

In re Petition of FRESCATI SHIPPING
COMPANY, LTD., as the Owner of the M/T
ATHOS I, and TSAKOS SHIPPING &
TRADING, S.A., as Manager of the M/T
ATHOS I, for Exoneration from or Limitation
of Liability

CIVIL ACTION
NO. 05-cv-305 (JHS)

UNITED STATES OF AMERICA,

Plaintiff,

v.

CITGO ASPHALT REFINING COMPANY,
et al.,

Defendants.

CONSOLIDATED

CIVIL ACTION
NO. 08-cv-2898 (JHS)

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OPINION

Slomsky, J.

July 25, 2016

I. INTRODUCTION

On November 26, 2004, as the oil tanker M/T Athos I approached its final destination in Paulsboro, New Jersey, it struck an unknown, abandoned ship anchor on the bottom of the Delaware River. The submerged anchor punctured the M/T Athos I's hull, causing approximately 264,000 gallons of crude oil to spill into the Delaware River. An extensive cleanup effort ensued. Although the cleanup was successful, it was also expensive and led to the instant litigation in this Court.

II. BACKGROUND

A. Factual Background

At or near the heart of this dispute is the M/T Athos I ("Athos I"), a single-hulled oil tanker measuring approximately 748 feet long and 105 feet wide. In re Frescati Shipping Co., Ltd., 718 F.3d 184, 190 (3d Cir. 2013). It was owned by Frescati Shipping Company, Ltd. ("Frescati"). Id. At the time of the accident, the Athos I had been chartered into a tanker pool created by Star Tankers, Inc. ("Star Tankers"), which is not a party to this action. Id.

CITGO Asphalt Refining Company, CITGO Petroleum Corporation, and CITGO East Coast Oil Corporation (together referred to as "CARCO") sub-chartered the Athos I from the Star Tankers pool to deliver a shipment of crude oil from a facility in Puerto Miranda, Venezuela, to its asphalt refinery located in Paulsboro, New Jersey. Id. CARCO vetted the Athos I for this shipment. Id. at 199. It memorialized the agreement between itself and Star Tankers in a voyage charter party, a common form of maritime contract for shipping services. Id. at 191. This contract included a safe berth warranty, which triggered two separate protections: "a contractual excuse for a master [or captain] who elects not to venture into an unsafe port, and protection

against damages to a ship incurred in an unsafe port to which the warranty applies.”¹ Id. at 197 (citing 2 Thomas J. Schoenbaum, Admiralty and Maritime Law § 11-10, at 32-33 (5th ed. 2011)).

Frescati, as the owner of the Athos I, is a third-party beneficiary of the warranty and relies on the portion that protects against damages to a ship incurred in an unsafe port. Id. at 197-98.

On November 26, 2004, the Athos I was nearing its final destination at CARCO’s asphalt refinery in Paulsboro, New Jersey. Id. at 192. Around 12:15 p.m., the vessel reached the entrance to the Delaware Bay, where a local Delaware River Pilot named Captain Howard Teal, Jr. (“Captain Teal”) boarded. Id. Captain Teal navigated the Athos I up the Delaware River in a channel, which is a demarcated transit lane for ships, until it reached the range² in the channel closest to CARCO’s Paulsboro berth area. Around 8:30 p.m., a Delaware River Docking Pilot named Captain Joseph Bethel (“Captain Bethel”) boarded the Athos I and replaced Captain Teal as the navigator. Id. Captain Bethel began the final docking maneuver of the Athos I into the Paulsboro berth. Id. The tide was relatively low at the time, reaching its lowest point only fifty minutes prior to the beginning of the docking maneuver. Id.

CARCO’s Paulsboro facility sits on a jetty on the New Jersey side of the Delaware River.³ Id. Federal Anchorage Number Nine (“the Anchorage” or “Anchorage Number Nine”)

¹ A safe berth warranty is an “express or implied obligation[] that the charterer will not require the vessel to call at an unsafe port or enter an unsafe berth to load, discharge, or take on bunkers.” Robert Force, Admiralty and Maritime Law 50 (2d ed. 2013). The terms “berth,” “terminal,” and “port” may be used interchangeably throughout this Opinion.

² The Delaware River channel is divided into ranges, each of which is named. For example, there is the Tinicum Range, the Billingsport Range, and the Mifflin Range.

³ See Appendix (Ex. “A”) for a photograph with a red outline of the pertinent area. (Ex. P-1153.)

separates the Delaware River channel from CARCO's Paulsboro berth area.⁴ Id. at 192. The Anchorage is neither owned nor controlled by CARCO. Id. at 194. Instead, it is maintained by governmental agencies, such as the United States Army Corps of Engineers, which conducts intermittent depth surveys of the Anchorage for dredging purposes. Id. CARCO retains responsibility over its triangular shaped Paulsboro berth area. Id.

To reach the berth, Captain Bethel had to maneuver the vessel from the channel through Federal Anchorage Number Nine, and then to the dock at CARCO's berth.⁵ While in the Anchorage, at 9:02 p.m., Captain Bethel was in the process of maneuvering the Athos I to the dock when the ship began to list heavily to one side.⁶ Id. at 192. Oil then became visible in the river. Id. Ultimately, approximately 264,000 gallons of crude oil spilled into the Delaware

⁴ An anchorage is “[a]n area where ships can anchor.” Black’s Law Dictionary 105 (10th ed. 2014). It is a place designated as suitable for temporary anchoring and is akin to a parking lot for vessels.

⁵ See Appendix (Ex. “A”) for a photograph and diagram of the Paulsboro berth area. As the Third Circuit explained,

[T]he Anchorage’s border runs diagonally to CARCO’s waterfront, ranging between 130 to 670 feet from the face of its ship dock. Across the Anchorage, the River Channel begins less than 2,000 feet from CARCO’s berth, a little more than two-and-a-half lengths of the Athos I. Customarily, a tanker of the Athos I’s size would come up the River, make a starboard (right) 180° turn into the Anchorage, and would then be pushed sideways by tugs (i.e., parallel parked) into CARCO’s pier.

In re Frescati, 718 F.3d at 192.

⁶ List is defined as “to tilt to one side; esp, of a boat or ship.” Merriam-Webster’s Collegiate Dictionary (11th ed. 2004). Listing or tilting to one side is caused by a disturbance to the state of equilibrium aboard a ship, such as an unbalanced load. Id.

River.⁷ The cost to remove the crude oil and to clean affected areas was considerable, and it took months to complete the project.

It was later determined that the Athos I had allided⁸ with an unknown, abandoned ship anchor located on the river bottom in Federal Anchorage Number Nine. In re Frescati, 718 F.3d at 192. The anchor was exhumed and inspected. Id. It weighed approximately nine tons and measured 6 feet, 8 inches long, 7 feet, 3 inches wide, and 4 feet, 6 inches high.⁹ Id. The owner of the abandoned anchor has never been located.¹⁰ Id. at 193.

B. Procedural History

This litigation involves an attempt by three parties to apportion monetary liability for the casualty. Id. at 189. The first party includes the Athos I's owner, Frescati Shipping Company, Ltd., and its manager, Tsakos Shipping & Trading, S.A. (also referred to as "Frescati" or "Frescati Plaintiffs"). Id. Frescati alleges that it spent approximately \$143 million for oil spill cleanup costs and damages. The second party is the United States Government, which reimbursed Frescati nearly \$88 million, pursuant to the provisions of the Oil Pollution Act of 1990 ("OPA"), 33 U.S.C. § 2701, et seq. Id. Both Frescati and the Government seek reimbursement for their respective costs from the third party to this litigation—entities known as

⁷ As will be noted infra, Frescati witness David Hall testified that, in his estimation, the amount of crude oil that spilled into the Delaware River was approximately 264,321 gallons. (Hall Tr., 170:3-171:21, Mar. 4, 2015.)

⁸ An allision is "[t]he contact of a vessel with a stationary object such as an anchored vessel or a pier." Black's Law Dictionary 91 (10th ed. 2014). "In modern practice, the less specific term collision is often used where allision was once the preferred term." Id. Both terms will be used in this Opinion.

⁹ See Appendix (Ex. "B-1," "B-2," "B-3") for photographs of the exhumed anchor. (Ex. D-2022, photographs 1 and 2; Ex. D-1913.)

¹⁰ CARCO speculates that the anchor was used for dredging operations and was dropped by Government personnel or a contractor responsible for the dredging. As mere speculation, this allegation will not be relied upon in reaching a conclusion of law.

CITGO Asphalt Refining Company, CITGO Petroleum Corporation, and CITGO East Coast Oil Corporation (jointly referred to as “CARCO”). Id. CARCO contracted to have the oil shipped on the Athos I from Venezuela to its refinery in Paulsboro, New Jersey. Id.

Frescati has brought a contract claim against CARCO for breaching the safe berth warranty included in the contract that CARCO made with Star Tankers, Inc. (“Star Tankers”), the intermediary responsible for chartering the Athos I to transport crude oil to CARCO’s Paulsboro berth. Id. Frescati is covered by the safe berth warranty as a third-party beneficiary. Id. at 197-98. Frescati also has brought a negligence claim against CARCO for failing to locate, warn of, and remove the lurking anchor. Id. at 207. The Government, as a statutory subrogee under OPA seeking to recover the \$88 million it reimbursed Frescati, has agreed to limit its claim for reimbursement from CARCO to Frescati’s contractual claim for breach of the safe berth warranty. Id. at 189. This limitation was agreed to in a partial settlement agreement with CARCO. Id. The Government therefore has no negligence claim against CARCO.

Following a forty-one day bench trial in 2010 before the Honorable John Fullam, a retired Judge of this Court, Judge Fullam found that CARCO was not liable for the casualty under any theory of liability. Id. Frescati appealed. Id. On May 16, 2013, the Third Circuit affirmed in part and vacated in part the judgment and held, inter alia, that the Court (Fullam, J.) did not make appropriate findings of fact and conclusions of law as required under Federal Rule of Civil Procedure 52(a)(1).¹¹ Id. The Third Circuit remanded this action for further consideration by the assigned successor judge, Joel H. Slomsky. Id. at 214.

¹¹ Rule 52(a)(1) provides:

In an action tried on the facts without a jury or with an advisory jury, the court must find the facts specially and state its conclusions of law separately. The

On April 1, 2014, this Court (Slomsky, J.) held a status hearing to discuss the parameters of the case on remand. During the hearing, counsel for CARCO noted that because a successor judge has been assigned to this case, Federal Rule of Civil Procedure 63 applies. The text of this Rule is quoted below. All parties ultimately agreed that the Rule applied here, which added a dimension to this case not mentioned by the Court of Appeals in its remand opinion.

C. Rule 63 Proceeding

Rule 63 of the Federal Rules of Civil Procedure covers a proceeding where “[a] successor judge steps into the shoes of the original judge in order to finish something that the original judge had started.” Patelco Credit Union v. Sahni, 262 F.3d 897, 905 (9th Cir. 2001). A classic example of a Rule 63 proceeding occurs where a substitute judge must “make a finding of fact at a bench trial based on evidence heard by a different judge.” Id. Rule 63 states:

If a judge conducting a hearing or trial is unable to proceed, any other judge may proceed upon certifying familiarity with the record and determining that the case may be completed without prejudice to the parties. In a hearing or a nonjury trial, the successor judge must, at a party's request, recall any witness whose testimony is material and disputed and who is available to testify again without undue burden. The successor judge may also recall any other witness.

Fed. R. Civ. P. 63. Rule 63 requires that the successor judge certify familiarity with the record and determine that the proceeding may be completed without prejudice to the parties. Id. Certification requires a successor judge to first read and familiarize himself with relevant portions of the record. Canseco v. United States, 97 F.3d 1224, 1227 (9th Cir. 1996). A successor judge may certify familiarity by reviewing the record before him, which includes examining the docket, the pleadings, and the transcripts from previous proceedings. See In re

findings and conclusions may be stated on the record after the close of evidence or may appear in an opinion or a memorandum of decision filed by the court.

Fed. R. Civ. P. 52(a)(1). There is no right to a jury trial in admiralty litigation. Fed. R. Civ. P. 38(e). The trial is before a judge. Id.

Lang, 293 B.R. 501, 510 (10th Cir. 2003) (finding that a successor judge certified familiarity with the record because he had “consider[ed] the evidence produced, the arguments of counsel, and . . . [the] applicable case law”). By certifying familiarity with the record, the court ensures that the parties will not be prejudiced when the successor judge proceeds where the original judge left off. 12 Moore’s Federal Practice § 63.04[3] (3d ed. 2015).

If the successor judge feels that, after certifying familiarity, factual findings and conclusions of law can be drawn from the record without prejudice to the parties, he may dispose of the case. 11 Charles Alan Wright & Arthur R. Miller, Federal Practice and Procedure § 2922 (3d ed. 2015). For example, in Lashbrook v. Kennedy Motor Lines, the district court noted that the record was sufficiently clear and complete, allowing the successor judge to dispose of the motion for a new trial without hearing the case again. 119 F. Supp. 716, 717 (W.D. Pa. 1954). However, if the successor judge feels that questions of law and fact remain, the recall of witnesses should be permitted.

In limited circumstances, a successor judge may make a finding of fact based on evidence heard by a different judge earlier in the proceeding. Fed. R. Civ. P. 63, Advisory Committee’s note to 1991 amendment. The Committee’s note to Rule 63 states that:

The revised text authorizes the substitute judge to make a finding of fact at a bench trial based on evidence heard by a different judge. This may be appropriate in limited circumstances. First, if a witness has become unavailable, the testimony recorded at trial can be considered by the successor judge pursuant to Fed. R. Evid. 804, being equivalent to a recorded deposition available for use at trial pursuant to Rule 32. For this purpose, a witness who is no longer subject to a subpoena to compel testimony at trial is unavailable. Secondly, the successor judge may determine that particular testimony is not material or is not disputed, and so need not be reheard. The propriety of the proceeding in this manner may be marginally affected by the availability of a videotape record; a judge who has reviewed a trial on videotape may be entitled to greater confidence in his or her ability to proceed.

The court would, however, risk error to determine the credibility of a witness not seen or heard who is available to be recalled.

Id. At a party's request, a successor judge must recall a witness whose testimony is material and disputed, and who is available to testify again without undue burden. Fed. R. Civ. P. 63. As noted, the successor judge may consider an unavailable witness's trial testimony as the equivalent of a recorded deposition available for use at trial pursuant to Rule 32 of the Federal Rules of Civil Procedure.

Rule 63 also allows a successor judge to recall witnesses sua sponte. 12 Moore's Federal Practice § 63.05[4][a] (3d ed. 2015). The policy behind this provision is that the successor judge, not having heard the witnesses at trial, may be hindered in resolving issues of credibility.¹² Id. For example, in Home Placement Serv., Inc. v. The Providence Journal Co., the First Circuit noted that “[u]ndue prejudice to the litigants might exist if, for instance, the determination to be made by the new district judge turned substantially on the credibility of witnesses whom the judge did not have the opportunity to observe in the context of the original trial.” 819 F.2d 1199, 1204 n.6 (1st Cir. 1987). This notion is of particular concern in the instant complex case, where the new judge (Slomsky, J.) did not see or hear the witnesses who testified at the trial before Judge Fullam. See, e.g., Thompson v. Sawyer, 678 F.2d 257, 269-70 (D.C. Cir. 1982) (noting that the successor judge may be unable to make determinations in complex civil cases without observing witness testimony).

The parties here contested what evidence from the original trial could be considered by the successor judge. Ultimately, on November 17, 2014, this Court issued an Order on the

¹² Although the judge assigned to this case (Slomsky, J.) did not recall witnesses sua sponte, the policy reason for this allowance applies equally well to witnesses recalled to testify by the parties.

evidence that would be considered at the Rule 63 proceeding. (Doc. No. 736.)¹³ The Order provided:

(1) [T]hat as the successor judge under Fed. R. Civ. P. 63, the Court will consider the live testimony of recalled witnesses and the exhibits introduced therewith at the recall hearing as the substantive evidentiary record of their testimony in assessing their credibility and deciding the merits of this case and (2) that this Court will base its decision on (and the parties may rely on) the previous trial testimony of those recalled witnesses before the original judge only to the extent that the Court formally admits their prior testimony into evidence at the recall hearing, as Fed. R. Evid. 801(d) or other provisions of the Federal Rules of Evidence or Federal Rules of Civil Procedure may allow.

(Doc. No. 736 at 1-2.) Thus, the testimony of recalled witnesses at the Rule 63 rehearing became part of the evidentiary record for making credibility determinations, findings of fact, and conclusions of law. This testimony gave the successor judge an opportunity to observe witnesses as they testified and be in a better position to make factual findings based on that evidence. Prior testimony of recalled witnesses also could be used as the Federal Rules of Evidence and Civil Procedure permit. In addition, an unavailable witness's trial testimony was the equivalent of a recorded deposition available for use at the Rule 63 proceeding.¹⁴

¹³ This case involves two consolidated actions, Civil Action No. 05-cv-305 and Civil Action No. 08-cv-2898. Unless otherwise noted, references to the docket are to Civil Action No. 05-305.

¹⁴ The Court has made reference only to four unavailable witnesses in the Findings of Fact. Three witnesses are Captain Iosif Markoutsis, Chief Mate Georgios Zotos, and Tsakos President Charalambos Hajimichael. As CARCO explained, "as foreign nationals they are beyond the Court's subpoena power and are therefore considered unavailable." (Doc. No. 867 at 37.) The remaining unavailable witness, Captain Virgil Quillen, testified at the first trial but passed away before the Rule 63 proceeding. The parties agreed that prior testimony from these unavailable witnesses can be relied upon in making factual findings. The Court has not made any credibility determination in regard to these witnesses. The Court has also considered the trial testimony of other witnesses in accordance with the requirements of Rule 63, as noted above, and prior deposition testimony submitted by the parties as evidence at the first trial before Judge Fullam. See E.D. Pa. Local Admiralty Rule 15(A). Although the testimony of witnesses fall within the ambit of these rules, the Court has only referred to the testimony of certain witnesses in this Opinion. Moreover, the Court agrees with CARCO that, in a Rule 63 proceeding, credibility determinations could be made based on the

On October 22, 2014, this Court certified familiarity with the record and found that this case could be completed without prejudice to the parties. The Court entered the certification before making any substantive rulings in this case. (Doc. No. 723.) On March 4, 2015, the Rule 63 hearing began. More than twenty witnesses were recalled, resulting in a thirty-one day proceeding.¹⁵

D. Oil Pollution Act of 1990

As the responsible party required to clean up the oil spill under the Oil Pollution Act of 1990, Frescati did so and incurred approximately \$143 million in cleanup costs and damages. As noted, the Government reimbursed Frescati nearly \$88 million. Thus, it is evident that the

deposition or prior testimony of an unavailable witness. (Doc. No. 866 at 7-10.) The Court has followed this mandate but has not found it necessary in this Opinion to make specific reference to the credibility of these witnesses.

¹⁵ Near the end of the proceedings, Frescati sought to introduce rebuttal testimony from four witnesses. (Civil Action No. 08-2898, Doc. No. 438.) CARCO objected to the introduction of any rebuttal testimony.

“Rebuttal evidence must generally tend to refute the defendant’s proof.” Bhaya v. Westinghouse Elec. Corp., 922 F.2d 184, 190 (3d Cir. 1990). It is allowed in the limited circumstances where a “defendant’s witnesses have presented an alternative theory or new facts or have otherwise created a need for a particularized response.” Bowman v. General Motors Corp., 427 F. Supp. 234, 240 (E.D. Pa. 1977). Additionally, Rule 611 of the Federal Rules of Evidence mandates that the Court exercise reasonable control over the mode and order of examining witnesses and presenting evidence. This includes controlling “the scope of rebuttal and surrebuttal.” Paul F. Rothstein, Fed. Rules of Evidence Rule 611 cmt. 1 (3d ed. 2015).

In accordance with the Bowman decision, this Court limited rebuttal testimony. 427 F. Supp. at 240. The Court explained that only “anything new presented [by the defense] to the trier of fact can be the subject of rebuttal.” (Trial Tr., 85:20-21, May 26, 2015.) Accordingly, the Court disallowed the rebuttal testimony of one proffered witness in full. The Court also severely limited the rebuttal testimony of the other three witnesses. (Trial Tr., 91:24-92:3, 112:20-115:6, May 26, 2015.) Rebuttal testimony was limited to only new matters that the defense raised in its case-in-chief.

statutory scheme of the Oil Pollution Act heavily influenced the actions of the parties in this case and the eventual cleanup of the oil spill.

i. Provisions of the Oil Pollution Act of 1990 (“OPA”)

The Oil Pollution Act of 1990 (“OPA”) was passed in the aftermath of the Exxon Valdez spill in 1989, which released over eleven million gallons of oil into Alaska’s Prince William Sound and created an environmental disaster that cost over \$3 billion in cleanup efforts.¹⁶ 3 Benedict on Admiralty ch. IX, § 112 (7th ed. 2015). In response, Congress passed OPA to quickly compensate victims, minimize environmental damage, and internalize the costs of oil spills within the oil industry. H.R. Res. 1465, 101st Cong. (1989) (enacted). To meet these goals, Congress established a liability scheme in which the person or entity that spilled the oil (i.e., the “responsible party”) must pay initially for all removal costs, and after doing so, it may then be entitled to statutorily limit its liability, through review by and reimbursement from the Government, after cleanup efforts are underway. 33 U.S.C. §§ 2703(c), 2713.

OPA makes the responsible party for a vessel from which oil is discharged liable for removal costs and damages under 33 U.S.C. § 2702, which provides:

¹⁶ Prior to the enactment of the Oil Pollution Act in 1990, various federal and state laws governed the aftermath of oil pollution from vessels. 2 Thomas J. Schoenbaum, Admiralty and Maritime Law § 18-3, at 287 (5th ed. 2011). One of the first federal statutes was enacted in 1970. It was Section 311 of the Federal Water Pollution Control Act (“FWPCA”). 33 U.S.C. §§ 1251-1397. Three years later, in 1973, Congress passed the Trans-Atlantic Pipeline Authorization Act (“TAPAA”), which covered Alaskan oil pollution. 43 U.S.C. §§ 1651-1655. Following this legislation, Congress enacted the Deepwater Port Act of 1974 (“DWPA”), and the Outer Continental Shelf Lands Act Amendments of 1978 (“OCLSA”). 43 U.S.C. §§ 1901-1906; 43 U.S.C. §§ 1801-1866. The most comprehensive legislation enacted, however, was the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (“CERCLA”). 42 U.S.C. §§ 9601-9675. In addition to federal laws governing the aftermath of oil pollution from vessels, various state laws were promulgated to address pollution incidents. When the Exxon Valdez spill occurred, the adequacy of federal and state laws governing oil spill pollution were examined and resulted in major legislative changes on the federal level.

Notwithstanding any other provision or rule of law, and subject to the provisions of this Act, each responsible party for a vessel or a facility from which oil is discharged, or which poses the substantial threat of a discharge of oil, into or upon the navigable waters or adjoining shorelines or the exclusive economic zone is liable for the removal costs and damages specified in subsection (b) of this section that result from such incident.

33 U.S.C. § 2702(a). Responsible parties include owners and operators of both vessels and facilities. 33 U.S.C. § 2701(32). The act imposes strict liability on those found responsible for discharging oil. 3 Benedict on Admiralty, supra § 112. When there is more than one responsible party, liability is joint and several. 2 Schoenbaum, supra, § 18-3, at 289.

Three complete defenses to strict liability are permitted under OPA. 33 U.S.C. § 2703(a). If the discharge of oil was caused solely by (1) an act of God, (2) an act of war, or (3) an act or omission of a third party, then the spiller will have a complete defense to liability. Id. Where an oil spill is caused solely by an act or omission of a third party (other than the responsible party), the third party is subject to the same liability for damages as responsible parties. 2 Schoenbaum, supra, § 18-3, at 292.

OPA encourages rapid private party responses to environmental disasters. Unocal Corp. v. United States, 222 F.3d 528, 535 (9th Cir. 2000). Spillers who immediately cooperate and begin cleanup efforts may be entitled to limit their liability. In fact, OPA places a monetary cap on the liability of cooperative responsible parties.¹⁷ “Because the Act sets liability limits for

¹⁷ Pursuant to 33 U.S.C. § 2708, a responsible party may be entitled to a limitation of liability under 33 U.S.C. § 2704. A responsible party who is entitled to a limitation of liability may file a claim with the Oil Spill Liability Trust Fund for reimbursement of the amount that removal costs and damages exceeded the limitation of liability amount. 33 U.S.C. § 2708(b). 33 U.S.C. § 2704 has rules to determine the total liability of a responsible party. In the case of a tank vessel or any other vessel, OPA sets forth the method to calculate the limit on liability based on tonnage of the vessel. Id.

Specifically, for a tank vessel, the total liability of a responsible party shall not exceed the greater of:

cooperative responsible parties, an incentive exists for responsible parties to respond quickly and competently in order to limit the extent of their financial exposure.” In re Frescati, 718 F.3d at 193 (citing 33 U.S.C. § 2704(a)). Responsible parties in compliance with OPA may file a claim with the Oil Spill Liability Trust Fund (“the Fund”), controlled by the United States Government, for reimbursement of costs beyond the liability limit.¹⁸ 33 U.S.C. § 2708(a)(2).

In the instant action, Frescati was able to limit its liability for cleanup costs to \$45,474,000, thus allowing it to recover cleanup costs exceeding that amount from the Fund. In re Frescati, 718 F.3d at 193. It was ultimately reimbursed \$87,989,157.31 for expenses arising from the Athos I oil spill.

ii. Subrogation Under OPA

Once the Fund has compensated a claimant, including a responsible party, it is subrogated to all rights the claimant has under any law. 33 U.S.C. § 2715(a). This Section

- (A) with respect to a single-hull vessel, including a single-hull vessel fitted with double sides only or a double bottom only, \$3,000 per gross ton;
- (B) with respect to a vessel other than a vessel referred to in subparagraph (A), \$1,900 per gross ton; or
- (C) (i) with respect to a vessel greater than 3,000 gross tons that is -
 - (I) a vessel described in subparagraph (A), \$22,000,000; or
 - (II) a vessel described in subparagraph (B), \$16,000,000; or
 (ii) with respect to a vessel of 3,000 gross tons or less that is -
 - (I) a vessel described in subparagraph (A), \$6,000,000; or
 - (II) a vessel described in subparagraph (B), \$4,000,000;

33 U.S.C. § 2704(a)(1). A “tank vessel” includes a vessel that carries oil in bulk as cargo, and that operates on the navigable waters, or transfers oil in a place subject to the jurisdiction of the United States. 33 U.S.C. § 2701(34). For any other vessel, the limitation of liability is \$950 per gross ton or \$800,000, whichever is greater. 33 U.S.C. § 2704(a)(2).

¹⁸ The Fund was established in 1986 and is supported by a tax of five cents per barrel on imported oil. 3 Benedict on Admiralty, ch. IX, § 112 (7th ed. 2015). The Fund is available to pay removal costs and other claims, damages, and expenses incurred in connection with an oil spill. 2 Thomas J. Schoenbaum, Admiralty and Maritime Law § 18-3, at 303 (5th ed. 2011). As noted, a responsible party may file a claim with the Fund to seek reimbursement for its removal costs and damages incurred as a result of an oil spill. 33 U.S.C. § 2708.

provides that “[a]ny person, including the Fund, who pays compensation pursuant to this Act to any claimant for removal costs or damages shall be subrogated to all rights, claims, and causes of action that the claimant has under any other law.” Id. Additionally, OPA has codified in § 2712(f) the Government’s right of subrogation after disbursements from the Fund. It states that “[p]ayment of any claim or obligation by the Fund under this Act shall be subject to the United States Government acquiring by subrogation all rights of the claimant or State to recover from the responsible party.” 33 U.S.C. § 2712(f). Subrogation occurs when “one person is allowed to stand in the shoes of another and assert that person’s rights against’ a third party.” US Airways, Inc. v. McCutchen, 133 S. Ct. 1537, 1546 n.5 (2013) (citation omitted) (explaining that “subrogation simply means substitution of one person for another”). As noted, the Fund paid Frescati \$87,989,157.31 as reimbursement for its removal costs and damages. By doing so, the Government was subrogated to all rights, claims, and causes of action Frescati had under any law in regard to the removal costs or damages.

iii. Oil Spill Response Under OPA

Oil spill responses under OPA and other federal laws are highly regulated to ensure that oil removal is handled as quickly and safely as possible.

First, OPA requires owners and operators of tank vessels and facilities to create a detailed contingency response plan, which is referred to as “vessel response plan,” covering a worst-case scenario oil spill.¹⁹ 33 U.S.C. § 1321(j)(5)(D). Vessel response plans include contractual

¹⁹ Specifically, a vessel response plan must:

- (i) be consistent with the requirements of the National Contingency Plan and Area Contingency Plans;
- (ii) identify the qualified individual having full authority to implement removal actions, and require immediate communications between that individual and the

commitments from oil spill removal contractors, which are known as Oil Spill Response Organizations (“OSROs”), to facilitate an immediate response to an oil spill. 3 Benedict on Admiralty, supra, § 112. These plans include training programs for response personnel, salvage plans for vessel damage, and firefighting procedures for vessels carrying flammable cargo. Id. (citing 33 C.F.R. § 155.4010).

Second, a vessel response plan must identify a “qualified individual” who acts as a liaison between the vessel interests and the United States Coast Guard. The qualified individual has the authority to implement oil removal efforts, and to represent both the vessel owner and the protection and indemnity club, which is known as a “P&I Club.”²⁰ 33 U.S.C. § 1321(j)(5)(D)(ii).

appropriate Federal official and the persons providing personnel and equipment pursuant to clause (iii);

(iii) identify, and ensure by contract or other means approved by the President the availability of, private personnel and equipment necessary to remove to the maximum extent practicable a worst case discharge (including a discharge resulting from fire or explosion), and to mitigate or prevent a substantial threat of such a discharge;

(iv) describe the training, equipment testing, periodic unannounced drills, and response actions of persons on the vessel or at the facility, to be carried out under the plan to ensure the safety of the vessel or facility and to mitigate or prevent the discharge, or the substantial threat of a discharge;

(v) be updated periodically; and

(vi) be resubmitted for approval of each significant change.

33 U.S.C. § 1321(j)(5)(D).

²⁰ A P&I Club is a “mutual insurance societ[y].” 2 Thomas J. Schoenbaum, Admiralty and Maritime Law § 19-12, at 392-94 (5th ed. 2011). Essentially, a P&I Club acts as an insurance provider for a group of vessels, and provides “third-party liability insurance covering vessel owners for specific named risks.” Id. Today, protection and indemnity insurance may cover virtually all risks. Id.

Third, although responsibility for the oil removal and cleanup lies with the responsible party, the Government directs the cleanup effort. 2 Schoenbaum, supra, § 18-3, at 303. OPA provides that the President has the authority to respond to an oil spill and monitor all federal, state, and private removal efforts. Id. (citing 33 U.S.C. § 1321(c)-(d)). The President has delegated this authority to the Coast Guard as the government agency responsible for ensuring that oil is removed from the environment. See 33 U.S.C. § 1321(c)(1)(A) (stating that the Coast Guard, by virtue of this delegation of authority, must “ensure effective and immediate removal of a discharge . . . of oil”).

Fourth, the Coast Guard federal on-scene coordinator (who is referred to as the “FOSC”) is responsible for managing the cleanup efforts. 2 Schoenbaum, supra, § 18-3, at 303 (citing 40 C.F.R. § 300.1). When faced with large or complex oil spills, the FOSC will enlist the help of the Coast Guard’s national strike force, which is staffed with responders who specialize in oil spills. 33 U.S.C. § 1321(d)(2)(C). The FOSC must ensure that cleanup efforts comply with the Government’s plan for responding to oil spills, which is referred to as the national oil and hazardous substances pollution contingency plan (the “national contingency plan”). 33 U.S.C. § 1321(d)(4).

Fifth, the national contingency plan “provides the organizational structure and procedures for preparing for and responding to discharges of oil.” 40 C.F.R. § 300.1. In particular, it outlines strategic objectives and priorities regarding oil spill responses. 40 C.F.R. § 300.3. It prioritizes oil spill response goals in the following order:

- (a) Safety of human life must be given the top priority during every response action. This includes any search and rescue efforts in the general proximity of the discharge and the insurance of safety of response personnel.
- (b) Stabilizing the situation to preclude the event from worsening is the next priority. All efforts must be focused on saving a vessel that has been involved in a

grounding, collision, fire, or explosion, so that it does not compound the problem. Comparable measures should be taken to stabilize a situation involving a facility, pipeline, or other source of pollution. Stabilizing the situation includes securing the source of the spill and/or removing the remaining oil from the container (vessel, tank, or pipeline) to prevent additional oil spillage, to reduce the need for follow-up response action, and to minimize adverse impact to the environment.

(c) The response must use all necessary containment and removal tactics in a coordinated manner to ensure a timely, effective response that minimizes adverse impact to the environment.

(d) All parts of this national response strategy should be addressed concurrently, but safety and stabilization are the highest priorities. The [F]OSC should not delay containment and removal decisions unnecessarily and should take actions to minimize adverse impact to the environment that begins as soon as a discharge occurs, as well as actions to minimize further adverse environmental impact from additional discharges.

(e) The priorities set forth in this section are broad in nature, and should not be interpreted to preclude the consideration of other priorities that may arise on a site-specific basis.

40 C.F.R. § 300.317. Thus, safety of all personnel and stabilization of the damaged vessel are top priorities. 40 C.F.R. § 300.317(d). The plan directs the FOSC to contain the oil spill as quickly as possible to ensure these priorities are met. The cost incurred for removal is not the immediate priority.

The FOSC manages the oil spill response efforts through the incident command system (“ICS”). The FOSC works with the responsible party’s designated incident commander, and state on-scene coordinators to implement the ICS.²¹ Essentially, the ICS is an organized structure through which day-to-day cleanup efforts are executed. It is split into four sections: planning, operations, logistics, and finance. (LaFerriere Tr., 37:24-38:4, Mar. 23, 2015.)²²

²¹ These personnel are referred to as the “unified command.”

²² Transcript citations refer to a transcript which has four segments on each page, with the exception of testimony from unavailable witnesses which was taken from the original trial transcript.

Planning involves creating a daily plan to combat the oil spill, which is referred to as the incident action plan. This includes daily objectives and work assignments. Work assignments are itemized on standard forms known as “ICS 204 assignment lists.” The FOSC must approve the incident action plan each day, ensuring that it meets the requirements outlined in OPA and the national contingency plan. 33 U.S.C. § 1321(d)(4); 40 C.F.R. § 300.317. Additionally, the operations section monitors the execution of each work assignment on the ICS 204 assignments lists. The logistics section orders, organizes, and delivers equipment, personnel, and other resources on a daily basis. Meanwhile, finance is responsible for managing the daily costs of the operation.

The ICS verifies that the cleanup is being completed. Coast Guard personnel monitor the cleanup efforts to ensure the tasks are being performed properly. Furthermore, the ICS uses standardized documents as a form of verification, such as the ICS Incident Status Summary Form, the ICS 211 Check-In Form, the ICS 213 RR Resource Request Form, and the ICS 214 Daily Log. The oil spill response is highly organized and regulated to ensure that oil removal is handled as quickly and as safely as possible.

E. Third Circuit Opinion

Before moving on in this Opinion to the Findings of Fact and Conclusions of Law, a review of the Opinion of the Third Circuit Court of Appeals in this case is necessary, especially given the information already discussed above and the guideposts set forth in the decision. As already noted, an appeal to the United States Court of Appeals for the Third Circuit was taken from the decision of the District Court (Fullam, J.) that CARCO had no liability for the oil spill. On May 16, 2013, the Third Circuit issued the Opinion in this case, in which it vacated in part the decision of Judge Fullam and directed this Court to resolve certain issues on remand. In re Frescati, 718 F.3d at 184. The Third Circuit stated, in relevant part:

Although remand is appropriate because the District Court [Fullam, J.] failed to set out separate findings of fact and conclusions of law as required by Federal Rule of Civil Procedure 52(a)(1), our legal conclusions also make it necessary to remand for factual findings.

We conclude that the Athos I, and Frescati as its owner, are beneficiaries of CARCO's contractual safe berth warranty. This was an express assurance that CARCO's port would be safe for the Athos I within the scope of its invitation—that is, drawing 37 feet or less.²³ Therefore, on remand it will need to be determined whether this amount of clearance was actually provided. This analysis may require inquiries into the arriving draft of the Athos I and, if the vessel was drawing more than the agreed-upon depth of 37 feet, the depth and positioning of the anchor.

* * *

We further conclude that, as this case is primarily a contractual one, analysis of Frescati's negligence claim is required only if the contractual safe berth warranty of CARCO is deemed satisfied. In that event, because we conclude that the accident occurred within the approach to CARCO's terminal, the District Court would need to determine the appropriate standard of care, whether it was breached, and if so, was that breach the cause of the spill. . . .

Finally, we conclude that the Government has waived its reliance on its partial settlement agreement in challenging CARCO's defenses to liability.²⁴

²³ The phrase “drawing 37 feet or less” means that the ship’s draft, which is the measurement from the water line to the bottom of the ship’s hull (which is the keel of the ship), was 37 feet or less.

²⁴ With respect to the Government’s waiver, the Third Circuit stated:

[The Government] thus asks us to preclude CARCO on remand from raising any equitable defense premised on the Government’s regulation of the Anchorage. CARCO responds that it retained unspecified equitable defenses relevant to defending against, *inter alia*, the contractual claims, and that the Government conflates defenses to these claims with violations of CARCO’s promise to forbear making claims against the Government sounding in tort to reduce or offset damages awarded to it. . . .

After hearing oral argument, the District Court denied the Government’s pretrial motion on the ground “that the question of subrogation defenses [by CARCO] is better resolved with the benefit of a full trial record.” J.A. at 101. CARCO claims that the Government failed to follow up at trial, and thus waived the issue. We agree, as we see no indication that the Government renewed its argument at trial (or argued before us how the issue has not been waived). Thus, we decline to

We thus affirm in part, vacate in part the District Court’s judgment orders of April 12, 2011 against Frescati and the Government, and remand for further proceedings consistent with this opinion. Further appeals relating to this case will be referred to the current panel.

Id. at 214-15. Thus, following the direction of the Third Circuit, this Court will address each of these issues in turn.

i. Issues This Court Will Resolve

In accordance with the Opinion of the Third Circuit, this Court has been asked to determine first whether the contractual safe berth warranty was breached, and, if necessary, whether CARCO was negligent in maintaining the approach to its berth. The Third Circuit held that CARCO conceded that the safe berth warranty ““would include the area in and around Paulsboro,’ including [Federal Anchorage Number Nine].” Id. at 203. Next, regarding whether the contractual safe berth warranty was breached, the Court of Appeals noted that the fact “[t]hat similar ships had successfully berthed at the port is irrelevant to whether the warranty was actually breached in this case,” and then directed this Court to determine whether the port was safe or the warranty breached based only on facts specific to the Athos I and its arrival at port rather than those based on similar ships. Id. at 204. Put another way, the Third Circuit stated that this Court must “determine whether the anchor rendered CARCO’s port unsafe for a ship of the Athos I’s agreed-upon dimensions and draft.” Id. at 203.

To determine whether the warranty was breached, this Court must first determine whether the safe berth warranty covered a draft of 37 feet or less. Id. at 204 n.20. The Court of

preclude CARCO from revisiting any previously raised equitable defense to the Government’s subrogation claims.

In re Frescati, 718 F.3d at 214 (alteration in original) (footnotes omitted).

Appeals explained, “it appears that CARCO warranted a safe berth with the understanding that the Athos I would be drawing as much as 37 feet of water upon its arrival.” Id. at 204. “The Voyage Instructions indicate that the vessel would be filled with a quantity of crude oil ‘always consistent with a 37 [foot] or less [fresh water] sailing draft at loadport.’”²⁵ Id. (quoting Voyage Instructions, Ex. P-360) (alterations in original). However, as the Third Circuit noted, “Of course, this is ultimately a factual matter for remand.” Id. at 204 n.20. Thus, as a preliminary matter, this Court must determine the size of draft that the warranty covered.

Findings as to the Athos I’s actual draft at the time of the accident must also be made. This draft must be found because “the warranty made by CARCO appears to have covered the Athos I up to a draft of 37 feet.” Id. at 204. As a result, if the Court concludes that the Athos I was drawing 37 feet or less without bad navigation or seamanship, then CARCO breached the warranty because the ship was damaged. Id. at 204-05.

The Third Circuit continued that if the Court cannot determine the draft or if the ship was drawing more than 37 feet, the Court must determine the amount of clearance above the anchor. Id. at 205. This determination would be necessary “to conclude whether the promised 37 feet of water depth was actually provided.” Id. Thus, the Court must make a finding on the draft covered by the warranty and then determine whether Athos I was drawing that amount or less. Finally, if the draft cannot be determined, the Court must determine the clearance provided above the anchor.

²⁵ In this case, the load port was in Puerto Miranda, Venezuela. The discharge port was in Paulsboro, New Jersey. Both berths are located in fresh water ports as opposed to salt water found in the open seas.

The next issue this Court will decide is whether CARCO was negligent in maintaining the approach to its terminal.²⁶ Id. at 207. To determine whether CARCO was negligent, the Court must make findings on the applicable standard of care, whether CARCO breached that standard, and whether such breach proximately caused the accident. A wharfinger²⁷ “is ‘bound to use reasonable diligence in ascertaining whether the berths themselves and the approaches to them are in an ordinary condition of safety for vessels coming to and lying at the wharf.’” Id. (quoting Smith v. Burnett, 173 U.S. 430, 436 (1899)). The Court of Appeals explained, however, that it was insufficiently informed to determine the standard of care applicable to such a duty, and that on remand this Court should delineate the exact standard of care that applies here. Id. at 211-12.

Additionally, this Court must find whether CARCO breached the applicable standard of care. Id. In this regard, the Court of Appeals stated that “[n]egligence exists where there was a ‘fail[ure] to exercise that caution and diligence which the circumstances demanded, and which prudent men ordinarily exercise.’” Id. at 211 (quoting Grand Trunk R.R. v. Richardson, 91 U.S. 454, 469 (1875)). The Third Circuit continued, “[i]n admiralty, the particular duty required under any given circumstance can be gleaned from statute, custom, or ‘the demands of reasonableness and prudence.’” Id. (quoting 1 Thomas J. Schoenbaum, Admiralty and Maritime Law, § 5-2, at 253 (5th ed. 2011)).

²⁶ Although the Court of Appeals explained that if this Court “rules in favor of Frescati on its contractual warranty claim, its negligence claim becomes unnecessary,” id. at 190, this Court will render a decision on both claims. No party has objected to this procedure and Frescati and CARCO concurred that the negligence issue also should be resolved by this Court. Substantial evidence was presented at the Rule 63 proceeding by Frescati and CARCO on the negligence claim and on defenses to the claim.

²⁷ A wharfinger—here, CARCO—is the manager or operator of a commercial wharf.

Finally, with regard to negligence, this Court must determine “whether the failure, if any, to meet the standard of care proximately caused the accident.” *Id.* at 212. The Court of Appeals explained, “proximate cause holds that a negligent defendant is liable for all the general kinds of harms he foreseeably risked by his negligent conduct to the class of persons he put at risk by that conduct.” *Id.* (internal quotation marks omitted). Thus, the question of causation turns on whether prudent behavior would have prevented this accident from occurring. *Id.* This requires an inquiry into the diligence required of a prudent wharfinger under the circumstances, and “whether a failure to implement those procedures proximately caused the accident.” *Id.* The Court will address each of these issues in turn.

ii. Binding Third Circuit Conclusions

The Third Circuit made other legal rulings, which guide this Court’s analysis in this case. First, with respect to the contractual safe berth warranty, the Third Circuit concluded, “although Frescati was not a named beneficiary to the safe berth warranty . . . the Athos I benefits from this warranty, and Frescati, as the vessel’s owner, is thus a third party beneficiary.” *Id.* at 197-98. A safe berth warranty benefits the vessel, and therefore “benefits its owner as a corollary beneficiary.” *Id.* at 199. Further, it would produce arbitrary results and create a windfall for CARCO if the vessel’s owner was deprived of the contractual benefits. *Id.* The Court of Appeals concluded that on remand, “Frescati, as the owner of the Athos I, may therefore rely on CARCO’s safe berth warranty as a third-party beneficiary.” *Id.* at 200.

Second, the Third Circuit determined the scope of the safe berth warranty. Guided by the Second Circuit, the Court of Appeals found that the safe berth warranty is an express assurance for the safety of the vessel that the berth will be as represented. *Id.* at 202. It explained that “a port is unsafe—and in violation of the safe berth warranty—where the named ship cannot reach

it without harm.” Id. at 200. The Third Circuit reasoned that the charterer—here, CARCO—is more likely than the ship owner to be familiar with the selected port. Id. at 202. Furthermore, the “‘express assurance’ warranty is most consistent with industry custom” and the “‘always afloat’ language plainly suggests an express assurance.” Id. at 202-03. Thus, the Third Circuit concluded that “the safe berth warranty is an express assurance made without regard to the amount of diligence taken by the charterer.” Id. at 203.

Third, the Court of Appeals determined the scope of the approach to the berth. It stated that the approach “should be understood by its ordinary terms, and that its scope is derived from custom and practice at the particular port in question.” Id. at 207-08. Thus, the approach is given its plain meaning, and a ship is on its approach when it “transitions from its general voyage to a final, direct path to its destination.” Id. at 209. More specifically, a ship is on its approach when it “makes its last significant turn from the channel toward its appointed destination following the usual path of ships docking at the terminal.” Id. The Third Circuit concluded, therefore, that the Athos I, while in the Anchorage, was indeed within the approach to CARCO’s terminal when the accident occurred. Id. at 211. CARCO had a duty to “exercise reasonable diligence in providing the Athos I with a safe approach,” which included the passage through the Anchorage. Id.

III. FINDINGS OF FACT²⁸

A. The Tanker, the Parties, and the Charters

1. This action arises out of an oil spill on the Delaware River. In re Frescati, 718 F.3d at 189.

On November 26, 2004, an oil tanker named the Athos I struck an abandoned anchor on the riverbed, puncturing its hull and causing oil to spill into the river. Id. at 192.

i. The Tanker

2. The Athos I is a single-hulled oil tanker measuring approximately 748 feet long and 105 feet wide. Id. at 190; (Teal Tr., 54:16-24, Mar. 16, 2015).
3. The Athos I is classified as a Panamax-size tanker, meaning that it is capable of passing through the lock chambers of the Panama Canal.²⁹ At the time of the accident, the Athos I was 21 years old. It was registered in Cyprus.³⁰

²⁸ Many witnesses testified at the Rule 63 proceeding, including a considerable number of qualified experts. The parties' experts disagreed on a number of critical issues. The "battle of the experts" and testimony from other witnesses has compelled this Court to make a credibility finding on certain witnesses. Unless otherwise indicated, in the footnotes that follow, this Court will refer to those witnesses who prevailed in the "credibility" battle and were found to be most credible and reliable by the Court. In addition, unless otherwise indicated, when the Court quotes or refers to the testimony of a specific witness, whether in the body of this Opinion or in a footnote, the Court is finding that the testimony has been proven as a fact, and that fact is relied on in reaching conclusions of law in this case. At times, an opposing contention of a party may be referred to in the Findings of Fact merely to highlight the positions of the parties on a specific factual matter. The Court will note, however, which facts are being found.

²⁹ See Appendix (Ex. "C") for photographs of the Athos I.

³⁰ The Athos I was registered as a Cyprus flagged ship. (Certificate of Registry, Ex. D-1844.) A maritime flag is "[a] flag designated for use on a vessel to show in what country the vessel is registered." Black's Law Dictionary 755 (10th ed. 2014). The flag establishes a ship's "citizenship" for purposes of protection, trade, and regulation. 1 Thomas J. Schoenbaum, Admiralty and Maritime Law § 2-21, at 69 (5th ed. 2011).

4. A tanker is a “vessel used primarily for transporting bulk liquid cargoes, such as . . . liquid petroleum products.” Black’s Law Dictionary 1684 (10th ed. 2014). As a large vessel, a tanker is fitted with a series of tanks in the bottom of the ship in which cargo is stored during transit.

5. A single-hulled oil tanker like the Athos I has tanks containing cargo right behind the steel shell plating of the hull.³¹ In essence, it has one sheet of steel separating the outside of the ship from its internal cargo tanks. In contrast, a double-hulled oil tanker has an outer hull, which is the outermost boundary of the ship, and an inner hull. These create a double layer of protection between the outermost hull and the cargo tanks.³²

ii. The Parties

6. The first party in this action, the Plaintiffs, includes Frescati Shipping Company, Ltd., and Tsakos Shipping & Trading, S.A. In re Frescati, 718 F.3d at 189.

7. Frescati Shipping Company, Ltd. owned the Athos I. Id.

8. Tsakos Shipping & Trading, S.A. (“Tsakos”) was the manager of the Athos I pursuant to a contract with Frescati. Id. It is joined in this litigation with Frescati Shipping Company, Ltd. as the Frescati Plaintiffs. (Ship Management Agreement, Ex. P-705 ¶ 2.3.)

9. The second party in this action is the United States Government (“the Government”), which reimbursed Frescati nearly \$88 million for the oil spill cleanup efforts. In re Frescati, 718 F.3d at 189.

³¹ The hull is the structural body of the ship. 8 Benedict on Admiralty, Nautical Glossary (7th ed. 2015).

³² After the Exxon Valdez oil spill, Congress recognized the danger posed by single-hulled oil tankers. In response, it enacted stricter requirements for these vessels, with the eventual phase-out of all single-hulled tankers. 3 Benedict on Admiralty ch. § 112 (7th ed. 2015). At the time of the accident, single-hulled tankers like the Athos I were grandfathered by the gradual phase-out provision of OPA and were allowed to transport oil, provided that they met certain conditions. Id.

10. The third party in this action, the Defendants, includes CITGO Asphalt Refining Company, CITGO Petroleum Corporation, and CITGO East Oil Corporation. Id. They are a set of affiliates known here collectively as “CARCO.” Id.

11. CARCO requested that oil be shipped on the Athos I from Puerto Miranda, Venezuela, to CARCO’s asphalt refinery in Paulsboro, New Jersey. Id.

iii. The Charters

12. Before the accident, Frescati chartered the Athos I to Star Tankers, Inc. (“Star Tankers”), which placed the Athos I in a tanker pool under a pooling agreement.³³ (Star Tankers Pool Agreement, Ex. P-355.) Star Tankers is not a party to this action.

13. In admiralty, contracts for service are known as charter parties.³⁴ A charter party is a highly standardized written contract that provides the terms for one party (the charterer) to hire the

³³ A tanker pool is a collection of tanker vessels under various ownership, which are placed under the care of a single administrator, known as a pool manager. The pool manager markets the vessels in the tanker pool to those companies interested in hiring vessels to carry cargo, facilitating the employment of each vessel. A pooling agreement is “[a] contract between shipowners or others having rights in vessels to cooperate in the management and operation of all vessels controlled by the group whereby each ship earns from the pool a share in net pool income proportionately with the ship's agreed theoretical earning capacity, as opposed to its actual earnings in the pool.” Black's Law Dictionary 1348 (10th ed. 2014). It is essentially the contract used to set up a tanker pool. It typically covers issues such as the objective of the pooling agreement, the authority of the pool managers, the capacity in which the pool managers will act, and the means by which the pool manager will be paid.

³⁴ As the Third Circuit explained:

The term “charter party” may be confusing in that it does not refer to an entity, but a document. This is due to its historical genesis, deriving from the phrase “charta partita, i.e., a deed of writing divided.” The charta partita was literally a divided document, the owner and charterer each retaining one half of the agreement.

In re Frescati, 718 F.3d at 190 n. 1 (quoting Black's Law Dictionary 268 (9th ed. 2009)).

carrying services of a vessel that is owned by another party. Robert Force, Admiralty and Maritime Law 44 (2d ed. 2013).

14. Two common types of charter parties were used in this case: a time charter party and a voyage charter party. In re Frescati, 718 F.3d at 190-91. “A time charter party is a contract for the use of the carrying capacity of a particular vessel for a specified period of time (months, years, or a period of time between specified dates).” Robert Force, Admiralty and Maritime Law 44 (2d ed. 2013). Unlike a time charter party where a “vessel’s employment is put under the orders of . . . charterers” for a period of time, a voyage charter party is a contract in which the owner of the vessel agrees to carry cargo from one port to another on a particular voyage.³⁵ Julian Cooke et al., Voyage Charters ¶ 1.1 (3d ed. 2007); Robert Force, Admiralty and Maritime Law 44 (2d ed. 2013).

15. In October 2001, the Athos I was chartered into a tanker pool assembled by Star Tankers pursuant to a time charter party. In re Frescati, 718 F.3d at 190-91. “Under a time charter, the owner [Frescati] remains responsible for the navigation and operation of the vessel and the charterer [Star Tankers] assumes responsibility for arranging the employment of the vessel, providing fuel and paying for certain cargo-related expenses.” Id. at 191 (alterations in original). The time charter party allowed Star Tankers to sublet (or sub-charter) the Athos I to an entity

³⁵ The Third Circuit noted that:

The fundamental difference between voyage and time charters is how the freight or “charter hire” is calculated. A voyage charter party specifies the amount due for carrying a specified cargo on a specified voyage (or series of voyages), regardless of how long a particular voyage takes. A time charter party specifies the amount due for each day that the vessel is “on hire,” regardless of how many voyages are completed.

In re Frescati, 718 F.3d at 191 n.2 (quoting David W. Robertson et al., Admiralty and Maritime Law in the United States 335 (2d ed. 2008)).

interested in hiring the vessel to transport its cargo from one place to another. Frescati remained responsible for keeping the vessel staffed and serviceable. Id. Thereafter, CARCO entered into the voyage charter party with Star Tankers for the Athos I to transport oil from Venezuela to New Jersey.

iv. Vetting the Athos I

16. CARCO was interested in transporting a load of crude oil from Venezuela to its asphalt refinery in Paulsboro, New Jersey. To do so, it vetted the Athos I to ensure the vessel was fit for transporting its cargo. (Rankine Tr., 186:17-21, May 26, 2015.) The vetting process is performed to inspect the condition of each vessel prior to its employment. (Rankine Tr., 186:17-21, May 26, 2015.) It includes a physical inspection of the vessel, as well as a review of the vessel's documentation. (Rankine Tr., 198:9-17, 211:12-19, May 26, 2015.)
17. In 2004, CARCO hired International Marine Consultants ("IMC") to perform the Athos I's physical vetting in Corpus Christi, Texas. (Rankine Tr., 9:12-10:4, May 27, 2015.)
18. On October 24, 2004, IMC Captain Khushru Dasoor ("Captain Dasoor") vetted the Athos I. (Rankine Tr., 36:5-10, May 28, 2015; CITGO Vetting Inspection Report, Ex. P-1373.) This included a physical inspection as well as paper vetting. Paper vetting was required to ensure that all certificates were valid, including the Safety Management Certificate, the Document of Compliance, and the International Oil Pollution Prevention. (Rankine Tr., 32:25-33:10, 34:19-35:14, May 28, 2015.)
19. The paper vetting of the Athos I included review of a Q88 Form, which is an online form that is completed by the vessel owner and then downloaded by entities interested in employing the vessel for transporting cargo. (Rankine Tr., 198:9-24, May 26, 2015.)

20. After vetting the Athos I, Captain Dasoor gave the vessel a rating of seven, which is an acceptable rating. (Rankine Tr., 36:5-10, May 28, 2015.)

21. The Q88 Form did not include information regarding an incident involving the Athos I that occurred in March 2004 off the coast of South Korea. (Rankine Tr., 30:8-10, May 28, 2015.) This incident occurred while the Athos I was managed and crewed by another company known as MareGulf, and does not affect the current matter.³⁶

v. Voyage Charter Party

22. On November 12, 2004, CARCO sub-chartered the Athos I from the Star Tankers pool to transport a load of crude oil from Venezuela to its asphalt refinery in Paulsboro, New Jersey. In re Frescati, 718 F.3d at 190-91. CARCO's employment of the Athos I was pursuant to a voyage charter party. Id. at 191.

23. CARCO's particular voyage charter party, based on a standard industry form, contained a safe berth warranty. Id.

24. The safe berth warranty provided that: "The vessel . . . shall, with all convenient dispatch, proceed as ordered to Loading Port(s) named . . . or so near thereunto as she may safely get (always afloat) . . . and being so loaded shall forthwith proceed, as ordered on signing Bills of

³⁶ Between 2001 and 2004, the Athos I was under the management of MareGulf ("Mare"). (Hajimichael Tr., 29:5-10, Oct. 19, 2010.) Mare supplied the crew and was responsible for the daily management of the vessel. (Hajimichael Tr., 29:5-10, Oct. 19, 2010.) In March 2004, Korean authorities inspected the vessel and alleged that one of the crew members bypassed the vessel's oily water separator and unlawfully discharged oil into the sea. (Hajimichael Tr., 91:15-98:10, Oct. 19, 2010.) After the Korean incident, Frescati replaced Mare with Tsakos as the manager of the Athos I. (Hajimichael Tr., 108:3-5, Oct. 18, 2010; 4:10-16, Oct. 19, 2010.) Information about the incident was available on the Internet through the Asia-Pacific Memorandum of Understanding, which is a group that monitors vessel performance. (Hajimichael Tr., 91:15-92:7, 96:18-97:9, Oct. 19, 2010.) As such, this information was publicly accessible to CARCO during the vetting process, but is not relevant to the incident in this case.

Lading, direct to Discharging Port(s), or so near thereunto as she may safely get (always afloat), and to deliver said cargo.” (Voyage Charter Party, Ex. P-357, Part II, ¶ 1). The loading port was located in Puerto Miranda, Venezuela, and the discharging port was CARCO’s berth in Paulsboro, New Jersey.

25. It further stated that:

The vessel shall load and discharge at any safe place or wharf, or alongside vessels or lighters³⁷ reachable on her arrival, which shall be designated and procured by the Charterer, provided the Vessel can proceed thereto, lie at, and depart therefrom always safely afloat, any lighterage³⁸ being at the expense, risk and peril of the Charterer. The Charterer shall have the right of shifting the Vessel at ports of loading and/or discharge from one safe berth to another on payment of all towage and pilotage shifting to next berth, charges for running lines on arrival at and leaving that berth, additional agency charges and expense, customs overtime and fees, and any other extra port charges or port expenses incurred by reason of using more than one berth. Time consumed on account of shifting shall count as used laytime except as otherwise provided in Clause 15.

(Voyage Charter Party, Ex. P-357, Part II, ¶ 9).

26. The safe berth warranty included two separate protections: “a contractual excuse for a master who elects not to venture into an unsafe port, and protection against damages to the ship incurred in an unsafe port to which the warranty applies.” In re Frescati, 718 F.3d at 197.

vi. Draft Restriction in the Voyage Charter Party

27. The Third Circuit noted that, from the record, “CARCO warranted a safe berth with the understanding that the Athos I would be drawing as much as 37 feet of water upon its arrival.” Id. at 204.

³⁷ A “lighter” is a small vessel employed in loading or unloading larger vessels.

³⁸ “Lighterage” is the liquid cargo being transported on the vessel.

28. On November 15, 2004, CARCO provided Iosif Markoutsis (“Captain Markoutsis”), the Captain of the Athos I, with voyage instructions, which dictated the Athos I load cargo only up to a draft of 37 feet at Puerto Miranda, Venezuela.³⁹ (Voyage Instructions, Ex. P-360.)

29. The voyage instructions stated that the Athos I would be filled with a quantity of crude oil “always . . . consistent with a 37 [foot] or less [fresh water] sailing draft at loadport.” (Voyage Instructions, Ex. P-360). The voyage instructions further required that after loading, the Athos I would advise CARCO of the vessel’s fresh water navigational draft. (Id.) CARCO had an inspector on site who recorded the loading draft. (Zotos Tr., 42:19-43:9, 49:14-17, Sept. 27, 2010.)

30. Another draft restriction on the Athos I was established by the Docking Pilots Association (“DPA”) Guidelines.⁴⁰ These guidelines recommend appropriate docking windows for vessels of various sizes during certain stages of the tide. In 1999, at CARCO’s request, the DPA established a docking window for the Paulsboro facility to maximize the number of vessels that could dock at CARCO’s berth. (Quillen Tr., 11:10-12:9, Sept. 2, 2010; DPA Memo., Ex. P-50; P-52.) CARCO wanted a longer docking window to avoid demurrage costs, which are incurred for example, when ships are forced to wait in the channel or Anchorage before docking to satisfy

³⁹ Captain Markoutsis was the Captain of the Athos I at the time of the casualty. Captain Markoutsis testified at the first trial. He did not testify at the Rule 63 proceeding because he was unavailable. Therefore, his testimony is being considered for limited purposes, such as the load draft of the Athos I, and the crew’s ability to stop the oil leak.

⁴⁰ Captain Virgil Quillen (“Captain Quillen”) was working on behalf of the DPA at the time, and communicated with the CARCO Port Captain about opening the docking window to allow ships to berth for longer periods of time. Captain Quillen testified at the first trial, but passed away before the Rule 63 proceeding, and therefore was unavailable to testify. His testimony is referred to for the limited purpose of understanding how the DPA worked with CARCO to open its docking window as noted.

the narrow docking timeframe.⁴¹ This longer window allowed vessels with a maximum draft of 37 feet, 6 inches to dock at CARCO's berth "from the beginning of [the] flood current until the time of one (1) hour after high water Billingsport Range."⁴² (Ex. P-52; Quillen Tr., 11:10-26:3, Sept. 2, 2010.)

31. The Court finds in this case that the maximum allowable draft for the Athos I upon its arrival to berth at the CARCO dock until the point of actual docking was at all times 37 feet, as noted in the voyage instructions, which required that the Athos I be filled with a quantity of crude oil always consistent with a 37 foot or less sailing draft at load port.

B. Geography of the Delaware River

32. The Delaware River is a major river on the Atlantic Coast of the United States. Originating in New York, it forms the entire boundary between Pennsylvania and New Jersey. It also is part

⁴¹ Demurrage is an agreed rate that is charged to a charterer when the ship is delayed during the charter for whatever reason through no fault of the ship. (Rankine Tr., 179:14-18, May 27, 2015.) The cost of a single day's demurrage for the Athos I was \$42,000. (Voyage Charter Party, Ex. P-357, Part I, ¶ I.)

⁴² The "tide" is the vertical movement of the water level, meaning that the water level moves above or below an average measurement called "Mean Lower Low Water" ("MLLW"). (Capone Tr., 208:3-209:3, Mar. 18, 2015.) MLLW is the 19-year average height of the lowest tide recorded at a tide station. It is essentially "zero." Actual water levels may be above or below the MLLW measurement at any given stage of the tide. (Capone Tr., 209:4-12, Mar. 18, 2015.) Tides in the Delaware River are semidiurnal (meaning that there are two high tides and two low tides each day) and the range of tide (the difference between high and low tide) is approximately six feet. (Capone Tr., 208:14-20, 226:14-16, Mar. 18, 2015.) The "tidal current" is the "horizontal component of . . . water movement." (Capone Tr., 211:10-16, Mar. 18, 2015.) When water flows up-river, this is referred to as a flood tide; when it moves down-river, it is referred to as an ebb tide. (Capone Tr., 212:11-16, Mar. 18, 2015.) Captain Howard Teal, Jr., a River Pilot on the Delaware, explained that a flood current is "an incoming current . . . associated with a slowly rising tide." (Teal Tr., 87:5-7, Mar. 16, 2015.) Allowing a ship to dock from the beginning of the flood current until one hour after high water would have reduced, at times, the available underkeel clearance between the riverbed and the bottom of the hull of the ship up to four feet. (Rankine Tr., 181:16-23, May 27, 2015.)

of the boundary between Pennsylvania and New York, and, for a few miles, the boundary between Delaware and New Jersey.

33. The Delaware River flows south, where it empties into the Delaware Bay (and the Atlantic Ocean) between Cape Henlopen, Delaware and Cape May, New Jersey.

34. All vessels traveling from the Delaware Bay north to the Delaware River, including the Athos I, are required to use a Delaware River Pilot to traverse its waters. See Del. Code Ann. tit. 23, § 121(a). These pilots have local knowledge of the surrounding waterways to safely navigate vessels to their final destinations.

35. The pilot station where Delaware River Pilots board ships is located at Cape Henlopen, Delaware. (British Admiralty Chart 2564, Ex. P-459.)

36. A Delaware River Pilot will generally navigate a vessel from the entrance to the Delaware Bay north, up the Delaware River, to its final destination.

37. With larger vessels such as the Athos I, Delaware River Pilots will generally stay within the Delaware River Channel, which has been dredged to a project depth of 40 feet.⁴³ The ship channel is “[t]he part of a navigable body of water where the water is deep enough for large vessels to travel safely.” Black’s Law Dictionary 1589 (10th ed. 2014.) It is essentially the main thoroughfare in the center of the river, and is analogous to a highway for cars. Ships stay within

⁴³ Historically, the Delaware River was not 40 feet deep. Rather, it has been dredged to 40 feet to promote the shipping industry. (DePasquale Tr., 40:2-13, Mar. 19, 2015; Teal Tr., 127:13-19, Mar. 16, 2015.) “Project depth” is the depth to which the Army Corps of Engineers has dredged the river. (DePasquale Tr., 40:2-13, Mar. 19, 2015.) If a section of the Delaware River had a project depth of 40 feet, the Army Corps of Engineers would conduct depth surveys intermittently in this area. If it found that the depths were shallower than 40 feet, these sections would be dredged to ensure that the shallowest depths were at least 40 feet. This depth allows ships to transit the river safely.

channel boundaries because this is generally the deepest part of the waterway and is known to mariners as the commuting route (or “shipping lane”).⁴⁴

38. The Delaware River channel is divided into ranges, each of which is named. (See, e.g., British Admiralty Chart 2604, Ex. P-461). For instance, if a ship were travelling north from the Delaware Bay along the Delaware River, it would pass through the Tinicum Range, the Billingsport Range, and would enter the Mifflin Range where it could start its approach to CARCO’s Paulsboro berth area.

39. On either side of the channel are shallower waters, shoals, and anchorages. A shoal is “a sandbank or sandbar that makes the water shallow.” Merriam-Webster’s Collegiate Dictionary (11th ed. 2004). As noted earlier, an anchorage is “[a]n area where ships can anchor.” Black’s Law Dictionary 105 (10th ed. 2014). It is a place designated as suitable for temporary anchoring. Merriam-Webster’s Collegiate Dictionary (11th ed. 2004).

40. Section 7 of the Rivers and Harbors Act of 1915 authorized the establishment of “anchorage grounds for vessels in all harbors, rivers, bays, and other navigable waters of the United States whenever it is manifest . . . that the maritime or commercial interests of the United States require such anchorage grounds for safe navigation.” 33 U.S.C. § 471(a).

41. “By 1930, a ‘lack of adequate anchorage room’ was creating a hazard on the Delaware River between navigating vessels and ‘those awaiting accommodation at the wharves, or awaiting cargo orders.’” In re Frescati, 718 F.3d at 193-94 (quoting H. Doc. No. 71-304, 24 (1930)).

42. In 1930, Federal Anchorage Number Nine, also known as the Mantua Creek Anchorage, was established. Id. at 194 (citing Pub. L. No. 71-520, 46 Stat. 918, 921 (1930)). It is approximately

⁴⁴ A shipping lane is “[a]n officially approved path of travel that ships must follow.” Black’s Law Dictionary 1589 (10th ed. 2014).

2.2 miles long and runs alongside the Delaware River channel. (*Id.*; British Admiralty Chart 2604, Ex. P-461.) It “provides a place for ships to anchor so long as they do not ‘interfere unreasonably with the passage of other vessels to and from Mantua Creek.’” In re Frescati, 718 F.3d at 194; 33 C.F.R. 110.157(a)(10). As noted, it is analogous to a parking lot, where vessels anchor and wait for other ships to pass before docking or traveling farther along the Delaware River.

43. The voyage from Puerto Miranda, Venezuela, to Paulsboro, New Jersey, is approximately 1,900 miles. Once the vessel reaches the entrance to the Delaware River, about 80 miles remain until the ship arrives at CARCO’s Paulsboro berth.

44. In order to reach this berth, the vessel must travel along the Delaware River Channel, past the Billingsport Range. Once it reaches the Mifflin Range and is positioned in the channel, the vessel will start its approach into CARCO’s berth. To do so, the vessel will move toward the eastern shore of the river, toward Paulsboro, New Jersey. In order to reach CARCO’s Paulsboro berth area, the vessel must pass through Federal Anchorage Number Nine.⁴⁵

45. CARCO’s Paulsboro berth is a fresh water port.

46. CARCO maintains a triangular-shaped berth area, which runs along the length of its terminal and extends offshore to the boundary of Federal Anchorage Number Nine.⁴⁶ This berth area is based on a permit issued by the Army Corps of Engineers for dredging and maintenance of the area. (Long Tr., 34:8-37:11, May 26, 2015.)

⁴⁵ The pertinent boundaries of Federal Anchorage Number Nine, which is located between the channel and CARCO’s berth, are illustrated in the Appendix (Ex. “A”).

⁴⁶ The boundary of CARCO’s Paulsboro berth area is illustrated in the Appendix (Ex. “A”).

47. CARCO hired S.T. Hudson Engineers to perform annual hydrographic surveys of its triangular berth area.⁴⁷ Specifically, S.T. Hudson Engineers conducted hydrographic surveys of the area using single-beam sonar (also known as “single-beam hydrographic surveys”). (Long Tr., 49:18-50:7, May 26, 2015.) While a single-beam hydrographic survey is effective for charting depths, it is not designed to detect obstructions or hazards lurking on the river bottom. Single-beam surveys are taken with a sounding mechanism (known as a “towpath”) at 50-foot intervals. A potential hazard may not be located within the exact line being charted. Even if a hazard was located within the line of the towpath doing the survey, it does not necessarily mean that the interpreter of the data would be alerted to an obstruction. Rather, it would simply show a change in depth at that charted spot.

48. The single-beam hydrographic surveys performed by S.T. Hudson Engineers for CARCO covered the entire triangular berth area, and a minimal area of Federal Anchorage Number Nine.⁴⁸ (Long Tr., 53:1-3, May 26, 2015.) These surveys did not cover the entire Anchorage, nor did they cover the entire area of the Anchorage through which ships arriving at CARCO’s berth would pass.

⁴⁷ Richard Long (“Mr. Long”) is the Vice President of S.T. Hudson Engineers, which is a marine consulting and engineering firm that is hired by many liquid product facilities along the Delaware River. (Long Tr., 6:7-11, 12:16-19, May 26, 2015.) He is a marine consultant and engineer and while employed by S.T. Hudson Engineers has conducted hydrographic or depth surveys for 31 oil terminals along the Delaware River. (Long Tr., 12:16-19, 13:7-10, 20:1-5, May 26, 2015.) Mr. Long acknowledged that S.T. Hudson Engineers represents “just the majority” of the terminals on the Delaware River and that there could be over 40 terminals. (Long Tr., 141:11-142:23, May 26, 2015.)

⁴⁸ See Appendix (Ex. “A”). The photograph has green wavy lines located in CARCO’s berth area which protrude into the Anchorage. These lines represent the path of the single-beam depth survey with intervals between them that could range from 50 to 400 feet. A close-up of the green lines would reveal numbers spaced out along the line which correspond to the depth in feet to the riverbed at a given point as recorded during the single-beam survey. The numbers would vary because the riverbed is not flat.

49. CARCO did not conduct any surveys within its berth area or Federal Anchorage Number Nine to search for hazards and obstructions.

50. CARCO did not ask the Army Corps of Engineers to search for hazards or obstructions in Federal Anchorage Number Nine.

C. Maintenance of Federal Anchorage Number Nine

51. Federal Anchorage Number Nine is neither controlled nor maintained by CARCO.

52. Although the Third Circuit noted in In re Frescati, 718 F.3d at 194, that “No government entity, however, is responsible for preemptively searching all federal waterways for obstructions,” this finding does not mean that the Government had no responsibility for maintaining Federal Anchorage Number Nine.

53. The Government is responsible for maintaining federally controlled waterways such as Federal Anchorage Number Nine. The United States Army Corps of Engineers (the “Corps”), the National Oceanic and Atmospheric Administration (“NOAA”), and the United States Coast Guard (the “Coast Guard”) are all tasked with this responsibility.⁴⁹

54. The Corps has regulatory jurisdiction that “extend[s] laterally to the entire water surface and bed of a navigable waterbody, which includes all the land and waters below the ordinary high water mark.” 33 C.F.R. § 329.11(a); In re Frescati, 718 F.3d at 194.

55. The Corps conducts hydrographic surveys and dredges as necessary to maintain the Anchorage’s project depth at 40 feet. (DePasquale Tr., 25:3-5, 40:2-10, Mar. 19, 2015.) The goal of the Corps is to conduct regular single-beam hydrographic surveys of federally controlled

⁴⁹ Under 33 U.S.C. § 1, this responsibility has been delegated to the Secretary of the Army, who has further delegated specific responsibilities to the Corps, NOAA, and the Coast Guard. See 33 U.S.C. § 1 (establishing that the Secretary of the Army has the power to regulate navigable waterways and may delegate this responsibility to governmental agencies as the Secretary sees fit).

waterways to alert mariners to any change of water depths. (DePasquale Tr., 27:4-6, 32:6-7, Mar. 19, 2015.) Anthony DePasquale (“Mr. DePasquale”), Chief of the Operations Division for the Army Corps of Engineers, explained that some areas are surveyed more frequently than others “because of the nature of the shoaling or historical—the historical shoaling pattern in that area, so we do them more often than a year sometimes to keep up with what is going on.”⁵⁰ (DePasquale Tr., 32:6-13, Mar. 19, 2015.)

56. The Government traditionally uses single-beam hydrographic surveys when monitoring Federal Anchorage Number Nine. It also has side-scan sonar equipment, which is predominantly used for searching for underwater obstructions.⁵¹ In 2004, the Corps of Engineers was equipped

⁵⁰ Anthony DePasquale has worked for the Corps for over 34 years. (DePasquale Tr., 23:6-8, Mar. 19, 2015.) He is the Chief of the Operations Division, a position that he has held for seven years. (DePasquale Tr., 22:7, Mar. 19, 2015.) At the time of the Athos I casualty, he worked for the division of the Corps that manages all of the construction and dredging projects along the Delaware River. (DePasquale Tr., 22:8-10, 23:3-5, Mar. 19, 2015.) He explained that, although the Corps surveyed federally owned waterways for depths and for dredging purposes, it did not independently search for underwater obstructions. (DePasquale Tr., 37:9-12, Mar. 19, 2015.) Moreover, he explained what “shoaling” means. He stated that “[s]hoaling is just the amount of sediment or sand or mud that falls in the bottom of the river channel over time that makes it shallower.” (DePasquale Tr., 32:16-20, Mar. 19, 2015.)

⁵¹ Side-scan sonar is “used to locate objects on the sea floor.” (Capone Tr., 176:7-10, Mar. 18, 2015.) It is also used to map geology, but is used “primarily to locate debris and obstructions.” (Capone Tr., 176:7-10, Mar. 18, 2015.) Side-scan sonar works by producing overhead imagery of the sea floor using acoustics, as opposed to using light or photography. (Capone Tr., 186:4-8, Mar. 18, 2015.) “It literally produces an overhead image of the sea floor or riverbed from which we can identify objects, look at different sediment types and understand more about features on the riverbed itself.” (Capone Tr., 186:13-16, Mar. 18, 2015.) Once surveys are completed to detect the presence of obstructions, removal of these obstructions may be necessary. John Fish, a private underwater search and surveyor, estimated that in 2004, he would have charged “somewhere between \$8,000 and \$11,000” to survey CARCO’s approach area using side-scan sonar equipment. (Fish Tr., 210:20-21, Mar. 19, 2015.) Further, Vincent Capone, a hydrographer, estimated that the cost of performing side-scan sonar surveys of CARCO’s approach would have been approximately \$7,500 to \$11,000. (Capone Tr., 200:9-24, Mar. 18, 2015.)

with single-beam, multi-beam, and side-scan sonar equipment.⁵² (DePasquale Tr., 33:14-34:3, 36:12-14, Mar. 19, 2015.)

57. Once the surveys are performed, the Corps updates the depth charts for the surveyed areas and reports these changes in “survey channel exams,” which are maps of the surveyed areas, and in “channel statements,” which summarize the shallowest depths of each area. (DePasquale Tr., 26:5-27:3, Mar. 19, 2015; Bethel Tr., 126:3-24, Mar. 17, 2015; Ex. D-1174.) These updated maps are mailed to mariners to put them on notice of any changes. (DePasquale Tr., 26:15-20, Mar. 19, 2015.) The Corps routinely provides this information to local pilots, mariners, and anyone else who requests it by phone, e-mail, or at meetings of the local Mariners’ Advisory Committee (“MAC”). (DePasquale Tr., 25:5-15, Mar. 19, 2015.)

58. Members of the local MAC include the Coast Guard, Delaware River pilots, the Corps, and representatives from the river terminals. (Ratcliffe Tr., 64:1-65:1, Mar. 16, 2015; see also MAC Meeting Minutes, Exs. P-748-P-751, P-753-P-756, P-759-P-760.) MAC meetings are attended by many constituents of the maritime community, including the Corps, the Coast Guard, NOAA, Delaware River Pilots and docking pilots, facility owners and operators, terminal representatives, the Maritime Exchange (an industry group that facilitates communication between shipping and the Government), tugboat owners and operators, the Philadelphia Regional Port Authority, and architect engineering firms. (DePasquale Tr., 48:1-17, Mar. 19, 2015; Rankine Tr., 72:6-10, May 27, 2015.) CARCO was a member of the local MAC and William Rankine, CARCO’s Paulsboro Port Captain, attended the meetings. (Rankine Tr., 43:11-12, May 28, 2015.) The Corps makes a presentation at every MAC meeting regarding dredging. (DePasquale Tr., 48:25-

⁵² A multi-beam survey would measure the depth of a river in a swath perpendicular to the direction that the survey vessel is traveling, thereby attempting to blanket the riverbed with soundings to measure the water depths.

49:18, Mar. 19, 2015.) A question and answer period follows each presentation by the Corps, and representatives of the various entities have the opportunity to report problems to the Corps. (DePasquale Tr., 49:24-50:9, 69:9-19, Mar. 19, 2015.) Additionally, the Coast Guard makes presentations on aids to navigation and marine safety, and NOAA makes presentations on charting. (Rankine Tr., 73:2-25, May 27, 2015.)

59. The Corps determines the areas on the Delaware River that need to be dredged. Commercial dredging operations can include using old anchors to dig up sediment on the river bottom. (DePasquale Tr., 56:23-57:21, Mar. 19, 2015.)

60. The Corps also regulates any construction or excavation within navigable waters, including the issuance of dredging permits. 33 U.S.C. § 403. No dredging in the Anchorage is permitted without prior approval from the Corps.⁵³

⁵³ Section 10 of the Rivers and Harbors Act states:

[I]t shall not be lawful to excavate or fill, or in any manner to alter or modify the course, location, condition, or capacity of, any port, roadstead, haven, harbor, canal, lake, harbor or refuge, or inclosure within the limits of any breakwater, or of the channel of any navigable water of the United States, unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army prior to beginning the same.

33 U.S.C. § 403. The Corps does not allow a private party to alter or modify a federally maintained waterway on its own accord. Id. Rather, the Corps requires private parties to obtain governmentally issued permits before engaging in such projects. Id. Federal regulations reaffirm this principle, establishing that:

Section 10 of the Rivers and Harbors Act approved March 3, 1899, (33 U.S.C. 403) (hereinafter referred to as section 10), prohibits the unauthorized obstruction or alteration of any navigable water of the United States. The construction of any structure in or over any navigable water of the United States, the excavating from or depositing of material in such waters, or the accomplishment of any other work affecting the course, location, condition, or capacity of such waters is unlawful unless the work has been recommended by the Chief of Engineers and authorized by the Secretary of the Army. The instrument of authorization is designated a permit. The authority of the Secretary of the Army to prevent obstructions to

61. On June 23, 2004, the Corps conducted a single-beam hydrographic survey of Federal Anchorage Number Nine. (DePasquale Tr., 29:10-15, Mar. 19, 2015.) The survey was conducted to update the controlling water depths of the Anchorage. The survey lines were approximately 400 feet apart. (DePasquale Tr., 30:20-24, Mar. 19, 2015.)

62. In addition to the Corps, the National Oceanic and Atmospheric Administration (NOAA) is involved in maintaining navigable waterways, including Federal Anchorage Number Nine. Like the Corps, NOAA conducts hydrographic surveys of the Delaware River, including Federal Anchorage Number Nine. NOAA has taken on the task of preparing and updating navigational charts used by mariners. The purpose of the charts is to promote safe navigation. (See Ex. D-1354.) These charts include information about water depths, including the controlling or shallowest depth within the limits of each range of the channel or anchorage, the location and depth of obstructions to navigation, and the predicted tides within a given range on the Delaware River. NOAA's charts also show the location of aids to navigation, anchoring areas, and other navigational features. (Ex. D-1535.) Obstructions are indicated on the charts by the abbreviation "Obstn." (See Ex. D-1354.) Federal Anchorage Number Nine was displayed on NOAA Chart 12313. (NOAA Nautical Chart 12313, Ex. D-1354.)

63. NOAA also maintains an Automated Wreck Obstruction Information System ("AWOIS") database, which publishes information on the location of known or suspected obstructions. The AWOIS website includes more than 10,000 reports, and as part of its hydrographical survey

navigation in navigable waters of the United States was extended to artificial islands, installations, and other devices located on the seabed, to the seaward limit of the outer continental shelf, by section 4(f) of the Outer Continental Shelf Lands Act of 1953 as amended (43 U.S.C. 1333(e)).

33 C.F.R. § 320.2(b).

duties, NOAA reviews the AWOIS reports, determines which objects warrant field investigation, and assigns those objects to NOAA survey boats for investigation.

64. NOAA occasionally conducts surveys of the surrounding waterways for various federal projects. In 1981, NOAA surveyed Federal Anchorage Number Nine. (NOAA Descriptive Report 1981, Ex. D-1517.) Additionally, in 2002, NOAA performed a hydrographic survey of the Delaware River using side-scan and multi-beam sonar. (Ex. D-1520; Ex. D-1525.) In 2004, NOAA maintained a fleet of hydrographic survey vessels that were equipped with side-scan and multi-beam sonar. (Doc. No. 555.)

65. Along with the Corps and NOAA, the Coast Guard participates in monitoring federal waterways, including Federal Anchorage Number Nine. See 14 U.S.C. § 2 (explaining the general duties of the Coast Guard). The Coast Guard is responsible for maintaining all aids to navigation and for enforcing regulations pertaining to vessels in federal waterways. See 33 C.F.R. § 62.1 (establishing the Coast Guard’s role in maintaining aids to navigation, such as buoys, lights, and other markers). It also establishes boundaries to anchorage grounds. 33 U.S.C. § 471.

66. The Coast Guard marks obstructions to navigation, including submerged structures. See 33 C.F.R. § 64.06 (defining a hazard to navigation as “an obstruction, usually sunken, that presents sufficient danger to navigation so as to require expeditious, affirmative action such as marking, removal, or redefinition of a designated waterway to provide for navigational safety”).

67. The Coast Guard maintains a warning communication system titled “Notice to Mariners,” which is published weekly and notifies mariners of any changes and discrepancies from the charts of navigable waterways, including shoaling and the location of newly discovered hazards to navigation. See 33 C.F.R. § 72.01-10 (describing the “Notice to Mariners” system as a means

of notifying the maritime community about new hydrographic discoveries and information concerning the safety of navigation).

68. Together, the Corps, NOAA, and the Coast Guard are responsible for ensuring that information concerning any changes in navigable waterways is promptly made public for the benefit of the maritime community. 33 C.F.R. § 209.325.

69. These governmental agencies are responsible for handling hazards to navigation.⁵⁴ If the Government is alerted to a potential obstruction, the Corps will remove it, provided that the

⁵⁴ 33 C.F.R. § 245.10 establishes the general policy for removal of obstructions in navigable waterways. It states:

(a) Coordination with Coast Guard. The Corps of Engineers coordinates its wreck removal program with the Coast Guard through interagency agreement, to insure a coordinated approach to the protection of federal interests in navigation and safety. Disagreements at the field level are resolved by referral to higher authority within each agency, ultimately (within the Corps of Engineers) to the Director of Civil Works, who retains the final authority to make independent determinations where Corps responsibilities and activities are affected.

(b) Owner responsibility. Primary responsibility for removal of wrecks or other obstructions lies with the owner, lessee, or operator. Where an obstruction presents a hazard to navigation which warrants removal, the District Engineer will attempt to identify the owner or other responsible party and vigorously pursue removal by that party before undertaking Corps removal.

(c) Emergency authority. Obstructions which impede or stop navigation; or pose an immediate and significant threat to life, property, or a structure that facilitates navigation; may be removed by the Corps of Engineers under the emergency authority of section 20 of the Rivers and Harbors Act of 1899, as amended.

(d) Non-emergency situations. In other than emergency situations, all reported obstructions will be evaluated jointly by the District Engineer and the Coast Guard district for impact on safe navigation and for determination of a course of action, which may include the need for removal. Obstructions which are not a hazard to general navigation will not be removed by the Corps of Engineers.

(e) Corps removal. Where removal is warranted and the responsible party cannot be identified or does not pursue removal diligently, the District Engineer may

obstruction is a hazard to navigation. 33 C.F.R. § 245.10. If the obstruction does not need to be removed, the Government will mark it and put mariners on notice that an obstruction is present. (DePasquale Tr., 37:2-39:12, 73:13-74:8, Mar. 19, 2015.) The Corps of Engineers responds to requests from the Coast Guard, pilots, and private users to locate reported objects. (DePasquale Tr., 37:13-38:14, Mar. 19, 2015.) Normally, the “[p]rimary responsibility for removal of wrecks or other obstructions lies with the [obstruction’s] owner, lessee, or operator.” 33 C.F.R. § 245.10(b). However, when an obstruction is determined to be a hazard to navigation, and the responsible party cannot be identified, the Corps of Engineers may remove the obstruction. 33 C.F.R. § 245.10(e) (see also DePasquale Tr., 73:15-20, Mar. 19, 2015)).

70. The Government never suggested to CARCO that private wharfingers were responsible for surveying Federal Anchorage Number Nine. (Rankine Tr., 182:15-19, 182:23-183:13, May 26, 2015.) There is also no evidence that the Government instructed wharfingers to inspect the Anchorage for obstructions. (Rankine Tr., 77:5-13, May 27, 2015.)

71. As noted, Richard Long, who has performed single-beam hydrographic surveys for many facilities on the Delaware River, surveyed the permitted berth area for these terminals. (Long Tr., 74:11-20, May 26, 2015.) These surveys did not extend to the entirety of federally controlled waterways such as Federal Anchorage Number Nine. (Long Tr., 14:23-15:2, 52:23-53:3, May 26, 2015.) Instead, terminal operators along the Delaware River relied on the Government to inspect and maintain federal anchorages. (Long Tr., 74:6-10, May 26, 2015.) As a result,

pursue removal by the Corps of Engineers under section 19 of the Rivers and Harbors Act of 1899, as amended, following procedures outlined in this CFR part.

33 C.F.R. § 245.10.

CARCO did not search for debris and hazards in Federal Anchorage Number Nine. (Rankine Tr., 140:3-5, May 27, 2015.)

D. The Voyage

i. Athos I's Departure Draft at Puerto Miranda, Venezuela

72. The voyage instructions required the Athos I to be loaded to a draft of 37 feet or less in fresh water at Puerto Miranda, Venezuela.⁵⁵ (Voyage Instructions, Ex. P-360). This 37-foot restriction was consistent with the draft restrictions on the Maracaibo Channel, through which the Athos I was required to pass to leave Venezuela and reach the Caribbean Sea.

73. Captain Markoutsis, the Captain of the Athos I, decided to load the vessel to a draft of 36 feet, 6 inches to ensure safe passage through the Maracaibo Channel. (Markoutsis Tr., 198:18-199:3, 200:7-201:13, Oct. 13, 2010.)

⁵⁵ The voyage instructions further stated:

Advise ETA upon departure loadport then 96/72/48/24 hours prior to the arrival to agent. Any delays due to this notification not being given, may be for owners account.

Initial message to include:

- A) ETA (date and hour in local time)
- B) Manifest quantities
- C) No sickness/pratique
- D) Arrival draft in feet – freshwater

Please copy Citgo on your 96 hr. notice to the National Vessel Movement Center so that Citgo will have a copy of the vessel security certificate.

(Voyage Instructions, Ex. P-360.)

74. On November 19, 2004, Chief Mate Georgios Zotos (“Chief Mate Zotos”) was in charge of loading the Athos I. He loaded the Athos I to a draft of 36 feet, 6 inches.⁵⁶ (Zotos Tr., 40:11-41:2, Sept. 27, 2010.)

75. Expert witnesses presented by Frescati and CARCO agreed that the Athos I was loaded to a draft of 36 feet, 6 inches at Puerto Miranda based upon documentation and loading computer data from the vessel. Frescati’s expert witness, Anthony Bowman (“Mr. Bowman”), determined that the Athos I had a fresh water departure draft of 36 feet, 6 inches.⁵⁷ (Bowman Tr., 164:7, 165:2-4, 166:1-4, Mar. 9, 2015.) Similarly, CARCO’s expert witness, George Petrie (“Mr. Petrie”), calculated that the Athos I’s departure draft was 36 feet, 6 inches. (Petrie Tr., 21:6-17, Apr. 13, 2015.)

⁵⁶ Chief Mate Zotos was the chief mate of the Athos I at the time of the casualty. He testified at the first trial. He was unavailable to testify at the Rule 63 rehearing. His testimony is considered only for limited purpose of determining the Athos I’s loading draft at Puerto Miranda, and how the tanks were monitored before the Athos I reached the entrance to the Delaware Bay.

⁵⁷ Mr. Bowman is a salvage naval architect who spent over 35 years investigating marine casualties, primarily involving large vessels. (Bowman Tr., 3:24-6:7, Mar. 9, 2015.) Prior to becoming a naval architect, Mr. Bowman received his second mate’s license in the United Kingdom and worked as a deck officer on large tankers. (Bowman Tr., 29:9-30:7, Mar. 9, 2015.) In 1979, Mr. Bowman founded a firm called Technical Marine Consultants (“TMC Marine”), and created the Seamaster software program. (Bowman Tr., 28:10-12, 41:17-19, Mar. 9, 2015.) The Seamaster program has been approved by Lloyd’s Register of Shipping and other classification societies for use in calculating a ship’s loading conditions and draft. (Bowman Tr., 41:10-19, 42:12-21, Mar. 9, 2015.) It works by entering all of the weights and centers of gravity for a particular vessel (such as the weight of the ship itself, the weight of the cargo, the weight of the fuel, etc.) and then “calculates the drafts of the ship, its stability, and how much reserve strength it would have in that condition, knowing the structure of the vessel.” (Bowman Tr., 17:22-18:10, Mar. 9, 2015.) Mr. Bowman explained how he used the Seamaster software program to accurately recreate how the Athos I casualty occurred. (Bowman Tr., 17:22-18:10, Mar. 9, 2015.) As explained more fully below, Mr. Bowman established that the Athos I’s arrival draft at Paulsboro was 36 feet, 7 inches. (Bowman Tr., 157:7-10, Mar. 9, 2015.)

**ii. Athos I's Passage from Puerto Miranda, Venezuela,
to the Entrance to Delaware Bay**

76. On November 20, 2004, the Athos I left Puerto Miranda and passed through the Maracaibo Channel at high tide. (Markoutsis Tr., 82:24-83:19, Oct. 14, 2010.)

77. The Athos I crew used the vessel's echo sounder to ensure that there was sufficient underkeel clearance to traverse the Maracaibo Channel safely.⁵⁸ (Markoutsis Tr., 201:14-202:15, Oct. 13, 2010.)

78. After passing through the Maracaibo Channel, the Athos I traveled to the entrance to the Delaware Bay. This voyage took approximately six days. (Athos I Bridge Log, Ex. P-1615.)

79. During the transit, a pump man monitored the oil cargo tanks and the ballast tanks daily.⁵⁹ (Zotos Tr., 50:17-23, Sept. 27, 2010.) There was no water in the ballast tanks. (Zotos Tr., 52:3-9, 52:20-23, Sept. 27, 2010.)

⁵⁸ An echo sounder is a device located on the hull of a ship that is used to determine the depth of the water underneath the ship. It measures underkeel clearance. Underkeel clearance is the minimum vertical distance between the lowest point of a ship's hull and the river bottom at a given location. Echo sounders work by transmitting sound pulses into the water that bounce off the riverbed, thereby measuring the distance between the hull and the river bottom.

⁵⁹ A ballast system allows a vessel to pump water in and out of large tanks to compensate for a change in cargo load, shallow draft conditions, or weather. The Athos I's ballast system is known as a segregated ballast system. (Bowman Tr., 59:6-20, Mar. 10, 2015.) This means it is "completely separated from the cargo pipeline system." (Bowman Tr., 59:9-11, Mar. 10, 2015.) It takes its water "from the sea," through "[t]he sea chest valve, [] which is based next to the side of the ship." (Bowman Tr., 59:12-16, Mar. 10, 2015.) To bring water into a ballast tank, "[o]n this vessel you would have to open four valves to allow water to come into a ballast tank." (Bowman Tr., 59:17-20, Mar. 10, 2015.) The tanks on the Athos I are numbered and labeled based on their location on the ship. For instance, one ballast tank is labeled "Number Four Starboard," while another is called "Number Seven Port." Each tank is quite large. For example, the Number Six Port ballast tank of the Athos I was approximately 63 feet deep, 70 feet long, and 12 feet wide. (Hall Tr., 150:7-16, Mar. 4, 2015.)

80. On November 25, 2004, the day before the Athos I arrived at the entrance to the Delaware Bay, the ballast tanks were sounded and were found to be empty.⁶⁰ (Zotos Tr., 51:18-52:23, Sept. 27, 2010.)

81. The voyage from Venezuela to the Delaware Bay was uneventful. Nothing occurred during transit that contributed to the casualty.

iii. Draft of the Athos I at the Entrance to Delaware Bay

82. On November 26, 2004, the Athos I arrived at the entrance to the Delaware Bay.

83. The Athos I had burned fuel to sail from Venezuela to the Delaware Bay. (Bowman Tr., 6:11-19, Mar. 10, 2015.) By burning fuel, the vessel became lighter, meaning that the “vessel would have risen in the water.” (Bowman Tr., 20:15-23, Mar. 10, 2015.) During the voyage, fresh water stored on the vessel was consumed. (Bowman Tr., 6:11-19, Mar. 10, 2015.) As a result, the Athos I’s mean draft was reduced by approximately 2 inches, to 36 feet, 4 inches.⁶¹ (Bowman Tr., 7:21-8:22, Mar. 10, 2015.) Mr. Bowman calculated this change based on the engine room log book in which a record is kept of the amount of fresh water and fuel the vessel consumes. (Bowman Tr., 7:9-11, Mar. 10, 2015.)

84. As a result of consuming fuel and fresh water during its voyage, the Athos I had a draft of about 36 feet, 4 inches when it reached the entrance to the Delaware Bay. (Bowman Tr., 7:21-8:22, Mar. 10, 2015.)

⁶⁰ Ballast tanks are “sounded” or measured to confirm the amount of water present in each tank. “Sounding” is the measure of distance from a sounding pad on the bottom of the tank to the water level in the tank. “Ullage” is essentially the distance from the top of the tank down to the water level.

⁶¹ A ship has different drafts. First, there is a forward draft, which is measured at the bow of the ship. Second, there is an aft draft, which is measured at the stern of the ship. Third, there is a mean draft, which is obtained by making a calculation of the average of forward and aft drafts on the port and starboard sides of the ship, with corrections, if necessary, for list.

85. At that point, the Athos I was no longer sailing at an even keel. (Bowman Tr., 9:7-12, Mar. 10, 2015.) Rather, the Athos I was “trimmed by the bow,” meaning that the bow or front of the ship was deeper in the water than the stern or rear of the ship. (Bowman Tr., 9:7-12, 9:22-25, Mar. 10, 2015.) The change in trim was due to the consumption of fuel and water from tanks that were located on the rear of the ship. (Bowman Tr., 9:9-12, Mar. 10, 2015.)

86. The Athos I took on approximately 510 metric tons of ballast water to restore it to an even keel. (Bowman Tr., 10:1-7, 12:25, Mar. 10, 2015.)

87. After taking on the 510 metric tons of ballast, the Athos I had a sailing draft of 36 feet, 7 inches. (Bowman Tr., 157:7-10, Mar. 9, 2015; 14:10-15, Mar. 10, 2015.)

88. The Athos I did not take on extra ballast (beyond the 510 metric tons) during the voyage to CARCO’s berth. (Bowman Tr., 61:8-16, Mar. 10, 2015.)

iv. Athos I’s Voyage from the Entrance to Delaware Bay to Billingsport Range

89. On the morning of November 26, 2004, Captain Howard Teal, Jr. (“Captain Teal”) was designated as the Delaware River Pilot for the Athos I’s transit up the Delaware River.⁶²

⁶² Captain Teal is a Delaware Bay and River Pilot. (Teal Tr., 40:4, Mar. 16, 2015.) He was originally trained in the Coast Guard to navigate the Delaware Bay and its surrounding waterways, and has received federal and state licenses as a first class pilot to navigate these waterways. (Teal Tr., 41:14-42:20, Mar. 16, 2015.) He has over 40 years of experience piloting large ships up the Delaware River. (Teal Tr., 40:6, Mar. 16, 2015.) He has piloted approximately 4,000 ships up the Delaware River. (Teal Tr., 42:24-43:2, 133:9-16, Mar. 16, 2015.) He has piloted vessels that had final destinations at Paulsboro around 50 times, including several Panamax-size vessels. (Teal Tr., 43:6-13, 55:13-17, Mar. 17, 2015.) For these reasons, he has extensive knowledge of the Delaware River. He knows how to read the tides and the weather conditions, and how these elements might affect the transit of a large ship such as the Athos I.

On November 26, 2004, Captain Teal boarded the Athos I and piloted the ship up river to Paulsboro, where he was relieved of his duty. (Teal Tr., 82:3-10, Mar. 16, 2015.) He knew that the ship’s arrival draft would be 36 feet, 6 inches, even keel, fresh water. (Teal Tr., 52:4-18, Mar. 16, 2015.) As he transited up river, he observed the tide from physical

90. Captain Teal was assigned to sail the Athos I on the Delaware River until the vessel reached Billingsport Range, which is a section of the Delaware River Channel not far from CARCO's Paulsboro berth area.⁶³ The transit from Cape Henlopen to CARCO's Paulsboro facility is approximately 80 miles and takes about eight hours to complete. (Teal Tr., 40:13-16, 148:11-13, Mar. 16, 2015.)

91. On November 26, 2004, around 12:15 p.m., Captain Teal boarded the Athos I. (Teal Tr., 67:20-23, Mar. 16, 2015.) Captain Teal planned on navigating the Athos I entirely within the Delaware River Channel, which has a project depth of 40 feet Mean Lower Low Water ("MLLW").

92. Before stepping onto the loading craft to board the Athos I, Captain Teal checked the tide gauges on the dock at Cape Henlopen. He observed that the tide "looked normal." (Teal Tr., 58:21-59:1, Mar. 16, 2015.)

93. Upon boarding, Captain Teal went to the bridge and met with Captain Markoutsis. (Teal Tr., 48:2-4, 51:12-52:18, Mar. 16, 2015.) They had a discussion, which he referred to as a master-pilot exchange, during which they talked about the transit up river. (Teal Tr., 51:12-52:18, 160:11-15, Mar. 16, 2015.) They discussed information including the anticipated arrival draft, wind, visibility, and tides. (Teal Tr., 51:12-52:18, 160:11-15, Mar. 16, 2015.) Captain Markoutsis informed Captain Teal that the Athos I's draft was "36 feet, 6 inches, even keel, fresh

markers along the shoreline and in the channel. (Teal Tr., 150:5-6, Mar. 16, 2015.) He noticed that the tide was falling at the beginning of his transit, and that the tide was slowly rising by the time the vessel reached Paulsboro. (Teal Tr., 153:4-154:6, Mar. 16, 2015.) Teal believed that the ship would arrive safely in Paulsboro.

⁶³ After reaching the Billingsport Range, a Delaware River Docking Pilot would board the ship and sail it from the Billingsport Range to the Mifflin Range, where the docking pilot would then begin the maneuver to dock the ship at CARCO's Paulsboro berth.

water.” (Teal Tr., 52:4-18, Mar. 16, 2015.) This was the draft that Captain Markoutsis anticipated the Athos I would have when it arrived at CARCO’s Paulsboro facility. (Teal Tr., 135:23-136:2, Mar. 16, 2015.) Captain Teal signed a pilot card indicating the draft and other conditions of the Athos I. (Teal Tr., 59:10-23, Mar. 16, 2015; Pilot Card, Ex. P-466.)

94. More specifically, in reference to the master-pilot exchange he had with Captain Markoutsis, Captain Teal stated that they “talked about the normal, my master-pilot relationship and points that we needed to discuss to take the ship up the river.” (Teal Tr., 51:19-21, Mar. 16, 2015.) He and Captain Markoutsis talked about “[w]ind, visibility, expected meeting of other vessels, the tides and the current situation here and what they would be expected to be upon arrival in Mantua.” (Teal Tr., 51:23-52:1, Mar. 16, 2015.) Captain Teal also stated that he and Captain Markoutsis “discussed the functioning of the ship[,] . . . the systems, the function of the ship, the weather, the available tide concerning the draft, the panamax advisory of the ship and decided that we could go and did go and made a successful transit.” (Teal Tr., 160:11-15, Mar. 16, 2015.)

95. Captain Teal informed Captain Markoutsis that he expected the Athos I would have about 1.5 to 3 meters (approximately 4 feet, 11 inches to 9 feet, 10 inches) of underkeel clearance during the transit. (Teal Tr., 53:19-22, Mar. 16, 2015.) Captain Teal explained that both he and Captain Markoutsis knew “that there was a necessary underkeel clearance for every ship that goes up the river,” and took this into consideration in planning the transit up river. (Teal Tr., 164:17-19, Mar. 16, 2015.) He explained that in their exchange, clearance meant that “there would be sufficient water to take the ship to Philadelphia and have a clearance acceptable to the company to do that.” (Teal Tr., 54:4-7, Mar. 16, 2015.)

96. Captain Teal stated that, in his discussions with Captain Markoutsis, one of the first things the men determined was “that the draft of the ship on arrival at the terminal, near the terminal, would be 36 feet, 6 inches, even keel.” (Teal Tr., 135:23-136:2, Mar. 16, 2015.)

97. Captain John Betz (“Captain Betz”) explained the type of activity that constitutes an adequate master-pilot exchange.⁶⁴ (Betz Tr., 22:20-23:4, Mar. 18, 2015.) In discussing what a river pilot normally does upon boarding a ship, he stated that, “when a pilot goes out to a ship, you know, he has got an idea possibly of things like draft, what type of ship it is. But once he gets aboard the ship, one of the first things you want to do is confirm the draft. That is the first thing. Usually they will give you a pilot card, and that will have information that you can review. But you also want to—the primary information you want is draft, confirmation of the draft and confirmation of the status of the machinery and the condition of the vessel.” (Betz Tr., 22:20-23:4, Mar. 18, 2015.) By machinery, Captain Betz was referring to “primarily the propulsion equipment.” (Betz Tr., 23:7-11, Mar. 18, 2015.)

98. Master-pilot exchanges occur to ensure the safe transit of the vessel.

99. Captain Betz opined that the master-pilot exchange between Captain Markoutsis and Captain Teal was adequate and appropriate. (Betz Tr., 22:16-23:4, 26:12-27:16, Mar. 18, 2015.) Captain Betz noted one exchange that contributed to his opinion that the master-pilot exchange was

⁶⁴ Captain Betz is a qualified pilot, master mariner, and expert in the areas of navigation, seamanship, and safety, particularly in transit of loader tankers under pilotage. (Betz Tr., 4:2-8, 19:3-7, Mar. 18, 2015.) For thirteen years, Captain Betz has worked as a harbor pilot in the port of Los Angeles. (Betz Tr., 144:4-8, Mar. 17, 2015.) He has worked in the maritime industry for 39 years. He holds a master’s license and a first class pilot’s license. (Betz Tr., 147:21-148:8, Mar. 17, 2015.) He has handled hundreds of ships of the Athos I’s size, and currently pilots anywhere from 320 to 420 ships each year. (Betz Tr., 153:15-16, 154:2-9, Mar. 17, 2015.) After watching Captain Teal and Captain Joseph Bethel, the docking pilot, testify, Captain Betz concluded that their exchanges with Captain Markoutsis were adequate and that they conducted themselves properly when piloting the Athos I. (Betz Tr., 22:8-23:4, 26:1-27:16, 47:3-23, Mar. 18, 2015.)

adequate: “[Captain Teal] had a discussion. He obtained the draft, confirmed the draft with the Captain. And he told the Captain that they were going to be running against a low tide or an outgoing tide and that he expected when the ship arrived up where they were going to board the docking pilot, that the tide at that point would be flooding and starting to rise.” (Betz Tr., 26:12-18, Mar. 18, 2015.)

100. Captain Betz testified that it was not customary for a river pilot to review the wheelhouse poster or the voyage plan during the master-pilot exchange.⁶⁵ (Betz Tr., 24:4-19, Mar. 18, 2015.)

101. Based on the testimony of Captain Teal and Captain Betz, and a review of the pilot card, there was a sufficient master-pilot exchange.

102. Captain Teal estimated that he took control as the ship’s pilot (referred to as taking the “conn”) within five minutes or so of his discussion with Captain Markoutsis. (Teal Tr., 68:15-17, Mar. 16, 2015.)

103. At approximately 12:30 p.m., Captain Teal started piloting the Athos I up the Delaware River. (Teal Tr., 71:4-8, Mar. 16, 2015.) Weather conditions during the transit were good, and visibility was “crystal clear.” (Teal Tr., 71:4-21, Mar. 16, 2015.)

⁶⁵ A wheelhouse poster is a poster that is typically displayed in the wheelhouse of a ship. It contains “general particulars and detailed information describing the [maneuvering] characteristics of the ship, and [is] of such a size to ensure ease of use.” IMO Resolution A.601(15)(3.2). The IMO Resolution further provides that the maneuvering performance of a ship “may differ from that shown on the poster due to environmental, hull and loading conditions.” Id.

Moreover, although a voyage plan was made after the casualty, the timing of its preparation and its content does not raise any credible inference about the cause of the allision.

104. Captain Teal expected that, by the time the Athos I arrived at Billingsport Range, there would be a rising tide and a slack flood current.⁶⁶ (Teal Tr., 62:21-63:24, 153:15-21, Mar. 16, 2015.)

105. Captain Teal observed the tides as he piloted the Athos I on the Delaware River. (Teal Tr., 71:22-73:9, Mar. 16, 2015.) He used several fixed markers and shoals to get an idea of how the tide was moving. (Teal Tr., 72:8-73:2, 150:5-6, Mar. 16, 2015.) He also looked at the tide books to predict the tides for the transit. (Teal Tr., 142:10-11, Mar. 16, 2015.) As he piloted the Athos I up river, he considered the tide to be a “normal falling tide.” (Teal Tr., 73:7-9, Mar. 16, 2015.) Although the falling tide or ebb current was with the ship for most of the transit, the tide caught up with the Athos I as it progressed up river. (Teal Tr., 148:20-21, Mar. 16, 2015.) By the time Captain Teal was relieved of his piloting duties, the tide had started to flood. (Teal Tr., 79:13-20, Mar. 16, 2015.)

106. Captain Teal did not experience any problems with squat as he piloted the vessel up river.⁶⁷ (Teal Tr., 61:12-62:10, Mar. 16, 2015.)

107. The transit along the Delaware River was uneventful. (Teal Tr., 77:8-21, Mar. 16, 2015.)

108. On November 26, 2004, around 8:25 p.m., Docking Pilot Joseph Bethel (“Captain Bethel”) boarded the Athos I at the “upper end of Tinicum Range,” which is just south of Billingsport

⁶⁶ Slack water is “the period at the turn of the tide when there is little or no horizontal motion of tidal water.” Merriam-Webster’s Collegiate Dictionary (11th ed. 2004).

⁶⁷ Squat is a hydrodynamic phenomenon, which occurs when a ship is moving through the waters. (Bergin Tr., 65:14-66:10, Apr. 14, 2015.) As a ship moves forward, it displaces a volume of water. (Id.) The displaced water rushes under the keel of the ship and creates a low pressure area causing the ship to sink down toward the riverbed. (Id.) The faster a ship is moving, the more the ship will sink down towards the riverbed. (Id.) This process causes a ship to be closer to the riverbed by increasing a vessel’s draft. (Id.)

Range.⁶⁸ (Bethel Tr., 33:23, 34:14-20, Mar. 17, 2015; British Admiralty Chart 2604, Ex. P-461.)

Just as Delaware River Pilots are required to transit a vessel up the Delaware River, Delaware River Docking Pilots are needed to perform a vessel's docking maneuver. Del. Code Ann. tit. 23, § 121(a). Captain Bethel was responsible for piloting the Athos I from the Delaware River Channel to CARCO's Paulsboro berth. (Bethel Tr., 32:7-14, Mar. 17, 2015.)

v. Athos I's Passage from Billingsport Range into Federal Anchorage Number Nine

109. Upon boarding, Captain Bethel spoke to Captain Teal about the Athos I. (Bethel Tr., 38:12-16, Mar. 17, 2015.) The two discussed the draft of the ship, which Captain Teal indicated was 36 feet, 6 inches, even keel, fresh water. (Bethel Tr., 39:2-7, Mar. 17, 2015.) They spoke about the vessel's condition, handling, and speed. (Bethel Tr., 38:12-16, Mar. 17, 2015; Teal Tr., 80:1-8, Mar. 16, 2015.) They also discussed the "telegraph order of the ship at [that] moment."⁶⁹

⁶⁸ Captain Bethel is an experienced ship-docking pilot for the Docking Pilots Association of Pennsylvania. He has approximately 17 years of experience as a docking pilot on the Delaware River. (Bethel Tr., 30:11-15, Mar. 17, 2015.) He comes from a family of ship-docking pilots. (Bethel Tr., 28:17-23, Mar. 17, 2015.) He holds several federal licenses, including a "1600-ton masters license [and a] first class pilot's license of any gross ton from marker 42 in the Delaware Bay to Newbold Island." (Bethel Tr., 27:11-13, Mar. 17, 2015.) The Paulsboro berth area is located within this range. Prior to the Athos I oil spill, Captain Bethel had docked about twenty large ships at CARCO's Paulsboro terminal. (Bethel Tr., 31:1-4, Mar. 17, 2015.)

In his testimony, Captain Bethel explained that he arrived on the Athos I, discussed docking procedures with Captain Teal, Captain Markoutsis, and an apprentice, and decided it was the appropriate time to begin the approach to CARCO's berth. (Bethel Tr., 41:1-43:3, Mar. 17, 2015.) He observed the rising tide and knew that the anticipated draft was 36 feet, 6 inches, even keel, fresh water. (Bethel Tr., 42:8, 47:18-48:10, Mar. 17, 2015.) He did not observe anything improper with the ship's condition. (Bethel Tr., 69:11-19, Mar. 17, 2015.)

⁶⁹ A telegraph is "[a] mechanical or electrical device for signaling from one part of a ship to another, as from the engine room to the bridge." Black's Law Dictionary 1692 (10th ed. 2014).

(Teal Tr., 80:1-8, Mar. 16, 2015.) Their exchanges were sufficient to allow Captain Bethel to dock the vessel. (Betz Tr., 27:13-16, 47:8-9, Mar. 17, 2015.)

110. Captain Bethel took over piloting the ship within a few minutes of this exchange with Captain Teal. (Teal Tr., 88:15-17, Mar. 16, 2015.)

111. Captain Bethel testified that the Athos I's navigational equipment was functioning properly, the propulsion system was working, and that the crew was performing well. (Bethel Tr., 69:11-19, Mar. 17, 2015.)

112. To decide on the docking maneuver for the Athos I, Captain Bethel needed to determine what the tide was doing. First, before boarding the vessel, he looked at the tide booklet from the Docking Pilots Association, which stated that the predicted flood current should start somewhere around 8:45 p.m. to 8:50 p.m. (Bethel Tr., 36:5-9, Mar. 17, 2015.) Second, he observed the tides. (Bethel Tr., 35:3-9, 36:15-17, Mar. 17, 2015.) He looked at the piers, the buoys, and the shoals as he boarded the Athos I and saw that there was a flood current. (Bethel Tr., 35:15-22, 36:12-17, Mar. 17, 2015.) He determined that the tide was rising and that there was a normal flood current. (Bethel Tr., 36:15-37:3, Mar. 17, 2015.) When he began to maneuver the Athos I into the Anchorage to dock the ship, he confirmed by visual observation that the flood was occurring for about one hour and the tide was rising. (Bethel Tr., 47:22-48:10, Mar. 17, 2015.)

113. Vincent Capone ("Mr. Capone"), an expert in hydrography, confirmed that the tide was rising when Captain Bethel made this determination.⁷⁰ (Capone Tr., 222:15-19, Mar. 18, 2015.)

⁷⁰ Mr. Capone is an expert who testified about hydrographic surveys of the Delaware River, the cost of performing side-scan sonar surveys, and the height of the tide when the allision occurred. (Capone Tr., 191:21-192:10, Mar. 18, 2015.) He has over thirty years of experience as a hydrographer. (Capone Tr., 176:11-13, Mar. 18, 2015.) Not only has he conducted hundreds of single-beam, multi-beam, and side-scan sonar surveys along the Delaware River, he has also performed these types of surveys around the world. (Capone Tr., 178:6-20, 179:3-4, Mar. 18, 2015.) In performing single-beam surveys, Capone maps the

Mr. Capone concluded that the tide had been rising “roughly 50 minutes to [one] hour” in Federal Anchorage Number Nine. (Capone Tr., 222:14-19, Mar. 18, 2015.) He came to this conclusion by looking “at the low tide in Philadelphia, the actual low tide as designated by the primary recording tide station, saw when the low tide occurred in Philadelphia, then used the NOAA relationship between Philadelphia and Billingsport to determine when low tide occurred approximately” in Federal Anchorage Number Nine. (Capone Tr., 222:21-223:1, Mar. 18, 2015.) Although his conclusion about the length of time the flood was rising in the Anchorage exceeded the time that it would be rising based on the start of the predicted tide in the booklet of the Docking Pilots Association, both sources confirmed the tide was rising before Captain Bethel began the docking maneuver.⁷¹

114. Captain Bethel knew that to dock the Athos I at CARCO’s Paulsboro berth, he would need to steer the ship from the Delaware River Channel through Federal Anchorage Number Nine before reaching the berth area. (Bethel Tr., 45:23-46:8, Mar. 17, 2015.) In addition, the ship needed to be turned 180° so that its port side would dock at the wharf. As the Third Circuit

river bottom and charts controlling (shallowest) depths for his clients. (Capone Tr., 179:16-180:11, Mar. 18, 2015.) He also has performed a minimum of 75 side-scan sonar surveys on the Delaware River, searching for debris, containers, and anchors. (Capone Tr., 179:5-15, Mar. 18, 2015.) Using predicted and actual tides along the river (or other waterway), Capone calculates the shallowest depths in his client’s survey areas. He is very knowledgeable on these subjects and instructs the United States Navy, United States naval allies, and international companies on the use of hydrographic and sonar survey equipment. (Capone Tr., 190:2-25, Mar. 18, 2015.)

⁷¹ Captain Teal and Captain Bethel observed that the tide was already rising. (Teal Tr., 211:22-23, Mar. 16, 2015; Bethel Tr., 36:12-17, 37:1-3, 47:22-48:10, 49:24-55:21, Mar. 17, 2015.) A surveillance video of the Athos I recorded at CARCO’s berth before and at the time of the allision shows that the lighting from the Athos I, and from Philadelphia International Airport directly across the river, illuminated the area, visibly displaying the tide and the current. (CARCO Dock Surveillance Video, Ex. P-1215.) Despite the time of day, given the lighting conditions, the pilots could observe the rising tide.

explained, “a tanker of the Athos I’s size would come up the River, make a starboard (right) 180° turn into the Anchorage, and would then be pushed sideways by tugs (i.e., parallel parked) into CARCO’s pier.” In re Frescati, 718 F.3d at 192. This docking maneuver would allow the Athos I’s port side to be tied up on the dock. (Bethel Tr., 45:20-46:8, Mar. 17, 2015.) Captain Bethel followed this docking maneuver when attempting to bring the Athos I into CARCO’s Paulsboro berth.⁷² (Bethel Tr., 45:23-46:8, Mar. 17, 2015.)

115. As Captain Bethel began the docking maneuver, the Athos I was even keel and was not listing to one side. (Bethel Tr., 51:2-3, 52:16, Mar. 17, 2015.)

116. The Athos I began its final approach into CARCO’s Paulsboro berth by starting the docking maneuver. (Bethel Tr., 45:23-46:8, Mar. 17, 2015.)

117. The Athos I made a starboard turn. (Bethel Tr., 45:23-46:8, Mar. 17, 2015.)

118. As the Athos I was making the turn, tugs began to slowly push the Athos I across Federal Anchorage Number Nine to CARCO’s Paulsboro berth. As this occurred, the ship’s speed was “just about dead in the water.” (Bethel Tr., 51:24-25, Mar. 17, 2015.)

vi. The Casualty

119. On November 26, 2004, at 9:02 p.m., as the tugs pushed the Athos I across Federal Anchorage Number Nine, Captain Bethel felt the vessel begin to list about five to seven degrees. (Bethel Tr., 57:2-5, Mar. 17, 2015.) The engines automatically shut off, and he saw oil in the water. (Bethel Tr., 58:7-8, 62:3-10, Mar. 17, 2015.) At this point, the Athos I was approximately halfway through Federal Anchorage Number Nine, and only 900 feet away from CARCO’s berth. In re Frescati, 718 F.3d at 192.

⁷² The triangular-shaped berth area in front of CARCO’s dock is not large enough for the 748-foot long Athos I to rotate 180°.

120. Captain Bethel immediately eased off the tugs and anchored the ship as the crew attempted to stop the leak. (Bethel Tr., 60:25-61:5, Mar. 17, 2015.)

121. Captain Bethel called the Coast Guard to alert them to the emergency and requested that an oil spill response team arrive as soon as possible. (Bethel Tr., 59:10-22, Mar. 17, 2015.)

122. Captain Markoutsis rushed down to the engine room and began transferring cargo from the cargo tank that was breached into another tank that could hold extra oil. (Bethel Tr., 63:3-10, Mar. 17, 2015.)

123. The Athos I crew was able to stop the oil from leaking into the Delaware River. (Markoutsis Tr., 44:6-46:10, Oct. 14, 2010.)

124. In the immediate aftermath of the casualty, it was unclear what the Athos I had encountered to cause the oil spill.

E. Investigating the Casualty

i. Locating the Anchor

125. It was later discovered that the Athos I had struck an abandoned steel anchor that was on the riverbed in Federal Anchorage Number Nine. The allision with the anchor caused the oil spill.

126. After the casualty, John Fish (“Mr. Fish”), an underwater search and surveyor, was asked to search for obstructions around the accident site.⁷³ (Fish Tr., 183:4-6, Mar. 19, 2015.) On

⁷³ Mr. Fish is an underwater surveyor. (Fish Tr., 140:10-142:11, Mar. 19, 2015.) He testified as an expert sonographer in the use of side-scan sonar technology and in the use and interpretation of side-scan sonar data in underwater search and survey work. (Fish Tr., 180:23-182:10, Mar. 19, 2015.) He has over forty years of experience as an underwater surveyor, particularly in the field of side-scan sonar technology. (Fish Tr., 143:8-9, Mar. 19, 2015.) Mr. Fish has reviewed “tens of thousands” of side-scan sonar images as part of his work detecting underwater objects. (Fish Tr., 148:14-21, Mar. 19, 2015.) He has consulted with the United States Navy in the application of GPS data to side-scan sonar. (Fish Tr., 146:8-15, Mar. 19, 2015.) He has worked with the National Transportation Safety Board on over-water airline casualties, including John F. Kennedy, Jr.’s tragic accident off the coast of Martha’s Vineyard. (Fish Tr., 149:13-150:3, Mar. 19, 2015.) Not only has he worked with

December 4, 2004, he conducted a survey of Federal Anchorage Number Nine using side-scan sonar. (Fish Tr., 140:20-24, 184:2-5, Mar. 19, 2015.) Mr. Fish detected what would later be identified as the anchor on his first survey run, but did “several dozen[] if not more” scans to ensure the identity of the obstruction. (Fish Tr., 140:20-24, 188:5-12, Mar. 19, 2015.)

127. In surveying the site, Mr. Fish also located “several concrete blocks and . . . a centrifugal pump casing” in the Anchorage. (Fish Tr., 189:2-3, Mar. 19, 2015.) These objects did not cause the accident on November 26, 2004.

128. On January 17, 2005, the anchor was exhumed and examined. (Crosson Tr., 30:7-10, Mar. 25, 2015.) It weighed approximately nine tons and measured 6 feet, 8 inches long, 7 feet, 3 inches wide, and 4 feet, 6 inches high. In re Frescati, 718 F.3d at 192.

129. The anchor has two natural stable positions, either in a “flukes-up” or “flukes-down” orientation, because it has a low center of gravity.⁷⁴ (Ratcliffe Tr., 166:2-11, 167:4-7, Mar. 12, 2015; Bowman Tr., 138:9-18, Mar. 10, 2015; see also Appendix (Ex. “B-1,” “B-2,” “B-3”) (D-

the United States Government, Mr. Fish has also worked with governments of other countries in underwater search operations, including China, Taiwan, Switzerland, Iceland, Tunisia, Japan, England, and Singapore. (Fish Tr., 150:5-12, Mar. 19, 2015.) In addition to his survey work, Mr. Fish has published two textbooks on side-scan sonar technology. (Fish Tr., 150:13-151:19, Mar. 19, 2015.) During the Rule 63 proceeding, Mr. Fish explained how side-scan sonar surveys are conducted. He also explained the methods used to detect and identify the anchor that caused the Athos I’s holing.

⁷⁴ Doctor Alan Ratcliffe (“Dr. Ratcliffe”) has worked as a naval architect for over thirty-five years. (Ratcliffe Tr., 87:25-88:24, Mar. 12, 2015.) He specializes in the investigation of steel structures and the movements of ships under various forces. (Ratcliffe Tr., 87:25-88:24, Mar. 12, 2015.) Dr. Ratcliffe helped create the Seamaster software program, which Mr. Bowman used to calculate the Athos I’s arrival draft. (Ratcliffe Tr., 113:12-23, Mar. 12, 2015.) Dr. Ratcliffe also created the Optimoor software program, which is used to calculate the forces necessary to move the Athos I along its directed path. (Ratcliffe Tr., 109:4-6, Mar. 12, 2015.) Dr. Ratcliffe is one of the few experts who possess expertise in both engineering and software development as applied to naval salvage and architecture. (Ratcliffe Tr., 95:17-20, Mar. 12, 2015.)

2022, D-1913).) In the “flukes-up” orientation, the anchor is standing on its crown and its flukes are pointed upward at a 65° angle. (Bowman Tr., 140:4-19, Mar. 10, 2015; see Appendix (Ex. “B-3”).) In this position, the tips of the flukes will be approximately 7 feet above the riverbed. (Bowman Tr., 140:4-19, Mar. 10, 2015; see also *In re Frescati*, 718 F.3d at 192.) In the “flukes-down” orientation, the crown and flukes of the anchor are both lying essentially in a horizontal position on the riverbed. (Traykovski Tr., 56:11-20, Mar. 30, 2015; see Appendix (Ex. “B-1,” “B-2”).) In this position, the palms are the highest point on the anchor, and reach a maximum height of approximately 41 inches (3 feet, 5 inches) above the riverbed.

130. The owner of the anchor has never been identified. *In re Frescati*, 718 F.3d at 193.

ii. Anchor’s Pre-Incident Orientation

131. The parties stipulated that the anchor had been in Federal Anchorage Number Nine for at least three years prior to the casualty “because it was detectable from a sonar scan performed by the University of Delaware in 2001 as part of an independent geophysical study.” *Id.* at 193.

132. In the sonar images from the University of Delaware study, the anchor appears to be in the “flukes-down” position. (Traykovski Tr., 56:11-20, Mar. 30, 2015.) With this orientation, the anchor reached a maximum height of approximately 41 inches above the riverbed. (Traykovski Tr., 57:8-11, Mar. 30, 2015; University of Delaware Survey Image dated August 15, 2001, Ex. D-1494.)

133. In the “flukes-up” position, the anchor would have reached a maximum height of approximately 7 feet above the riverbed. At some point before the casualty, the anchor moved from a “flukes-down” position to a “flukes-up” orientation. (Bowman Tr., 127:20-128:1, Mar. 9, 2015.)

134. From 1997 to 2004, 673 vessels anchored in Federal Anchorage Number Nine. (Rankine Tr., 62:14-64:3, May 27, 2015; Ex. D-2042.) From 2001 to 2004, 241 of those vessels went to CARCO's Paulsboro berth. (Rankine Tr., 64:8-71:4, May 27, 2015; Ex. D-1859). With hundreds of ships anchoring in Federal Anchorage Number Nine from 1997 to 2004, which even includes the period after 2001, a vessel's sweeping anchor chain could have caught and moved the submerged anchor into an upright position.⁷⁵ Regardless of the number of ships drafting 37 feet or less that passed through the Anchorage to dock at CARCO's berth, there still remained the fact that movement on the riverbed caused the anchor to shift to a "flukes-up" position. Although the actual cause of the anchor's movement to a "flukes-up" position will never be known, the Court finds that at some point after December 2001, this movement occurred and the anchor was positioned in a "flukes-up" orientation when it allided with the Athos I.⁷⁶

iii. Anchor's Post-Incident Orientation

135. After the casualty, the anchor was found in the "flukes-down" position. (Fish Tr., 205:20-22, Mar. 19, 2015.) It reached a height of approximately 39 inches above the riverbed. (Fish Tr., 205:20-22, Mar. 19, 2015.)

136. It was found approximately 10 feet from the location of the casualty. (Traykovski Tr., 63:25-64:12, Mar. 30, 2015; Fish Tr., 68:16-19, Mar. 20, 2015.)

⁷⁵ See Appendix (Ex. "D") for a photograph showing an example of a "scour line" on the surface of the riverbed in Federal Anchorage Number Nine. (Ex. P-1191.) A scour line is a displacement of the sediment on the riverbed by a swift moving object. It can be caused by swift moving water or an object being dragged along the river bottom, or as in this case, by oil from the moving ship. Exhibit "D" shows a scour line at the top of the picture, which was taken in 2001. No evidence was offered on what condition caused this scour line to appear on the riverbed.

⁷⁶ On May 5, 2015, this Court personally inspected the exhumed anchor and the excised portion of the Athos I's hull, which contained the two holes made by the anchor when it allided with the hull. These objects were stored at the Coast Guard Station in Baltimore, Maryland.

iv. Athos I's Allision with the Anchor

137. The abandoned anchor pierced the Athos I's hull, making two holes—a long hole and a round hole. (Crosson Tr., 14:22-16:16, Mar. 25, 2015.)⁷⁷

138. The anchor pierced two tanks, Number Seven Port ballast tank and Number Seven Center cargo tank. (Bowman Tr., 162:11-23, May 28, 2015; Hall Tr., 134:5-13, Mar. 4, 2015.) The Number Seven Port ballast tank was filled with water and did not cause any damage to the environment. The cargo tank was filled with crude oil, which poured into the Delaware River. (Bowman Tr., 162:11-23, May 28, 2015.)

⁷⁷ Joseph Crosson (“Mr. Crosson”) is a licensed professional metallurgical engineer. He has over 44 years of experience investigating ship casualties. (Crosson Tr., 212:12, 215:1, Mar. 24, 2015.) Mr. Crosson’s areas of specialization include metallurgical and weld related structural failures, mechanical failures, heat exchanger problems, stress analysis, ship casualty investigations, wire rope failures, power plant associated failures, turbine failures, materials testing, container crane failures, and examination of container crane weldments. He also has extensive experience in evaluating piping corrosion and failures in HVAC systems, domestic water systems, and other pipe systems.

A metallurgical engineer studies metals, and how they behave under certain stresses and forces. (Crosson Tr., 212:21-213:4, Mar. 24, 2015.) Mr. Crosson has worked on some of the most difficult metallurgical infrastructure issues, including the World Trade Center after the 1993 bombing, and even the recovery efforts following the collapse of the World Trade Center in 2001. (Crosson Tr., 234:2-235:23, Mar. 24, 2015.) In ship casualties, Mr. Crosson investigates the damage and determines how the damage occurred. (Crosson Tr., 214:9-18, Mar. 24, 2015.) He will study whether there was any preexisting damage to the ship’s structure that might have contributed to the casualty. (Crosson Tr., 214:9-18, Mar. 24, 2015.) He has extensive experience investigating the metallurgical aspects of ship casualties. (Crosson Tr., 229:20-230:6, Mar. 24, 2015.) He has worked on several large marine casualties, including the explosion of the oil tanker Betelgeuse in Bantry Bay Island (1979); the grounding of the oil tanker Alvenus in Galveston, Texas (1984); and the collision of the Sea Witch and an oil tanker underneath the Verrazano Bridge in New York (1970s). (Crosson Tr., 219:16-220:25, Mar. 24, 2015.) He holds certifications as a welding and tank inspector. (Crosson Tr., 236:5-15, Mar. 24, 2015.)

In this case, Mr. Crosson investigated the Athos I after the casualty, and offered his opinion on how the allision occurred after he inspected the damage to the ship’s hull. (Crosson Tr., 236:22-237:7, 229:20-230:6, Mar. 24, 2015.)

139. Expert witnesses examined the anchor and damage to the Athos I to determine how the vessel came into contact with the submerged anchor. (Bowman Tr., 127:20-128:1, Mar. 9, 2015; Crosson Tr., 229:20-230:6, Mar. 24, 2015.)

140. The Athos I was being pushed by tugs and was moving “astern and to port” when it made contact with the anchor.⁷⁸ (Bowman Tr., 129:8-12, Mar. 9, 2015; Crosson Tr., 47:18-48:2, Mar. 25, 2015.)

141. As Captain Bethel explained, he was completing the docking maneuver when the Athos I contacted the submerged anchor. The docking maneuver required Captain Bethel to steer the Athos I from the channel, make a starboard (right) turn while in Federal Anchorage Number Nine, and allow the ship to be pushed by tugs in order to dock. (Bethel Tr., 45:23-46:8, Mar. 17, 2015.)

142. Tugs alone do not turn a ship of the Athos I’s size with the precision required to move it into a parallel position with the dock. Rather, Captain Bethel had to change the movements of the Athos I’s engine. The log book shows that the engine movements were changed from ahead to astern, and that the Athos I was moving astern for two minutes immediately before the casualty. (Bowman Tr., 93:14-96:24, Mar. 10, 2015; Engine Bell Book, Ex. P-372.) Changing the ship’s engine to astern is analogous to putting a car in reverse. (Bowman Tr., 93:14-96:24, Mar. 10, 2015.) At the same time the engine was moving astern (or in reverse), the tugs were on the starboard side of the ship pushing the Athos I sideways to the dock, meaning that the Athos was moving “astern and to port” when it struck the anchor. (Bethel Tr., 73:4-7, Mar. 17, 2015).

143. The anchor was in the “upright or close to upright position” (i.e., “flukes-up” orientation) when it punctured the hull. (Bowman Tr., 127:20-128:1, Mar. 9, 2015.) As noted, the tips of the

⁷⁸ See Appendix (Ex. “E”) for an illustration of the Athos I’s movements during its attempt to dock at CARCO’s Paulsboro berth area. (Ex. D-2064A.)

anchor's flukes are approximately 7 feet above the riverbed when the anchor is in a "flukes-up" position.

144. The tip of a fluke first came into contact with the ship. (Bowman Tr., 116:6, Mar. 10, 2015.) As the hull of the Athos I pushed against the fluke of the anchor, "[t]he anchor would have initially resisted movement," but by the ship continuing to move across the anchor, the forces against it would have increased, bending the fluke tip, and then ultimately penetrating the hull of the Athos I, creating the long hole. (Bowman Tr., 129:8-129:16, Mar. 10, 2015.) Dr. Ratcliffe explained how there were sufficient forces against the anchor fluke to initially cause the steel fluke tip to bend before it punctured the hull of the ship. (Ratcliffe Tr., 101:12-102:8, Mar. 12, 2015.)

145. The riverbed was composed of material, including rocks and sediment, sufficiently hard that the competing forces from the river bottom and the ship caused the anchor's fluke to puncture the hull, rather than cause the anchor to sink into the riverbed.⁷⁹

146. The tip of the fluke made the long hole in the Athos I, and punctured the Number Seven Port ballast tank, which was holding ballast water. (Bowman Tr., 116:5-6, Mar. 10, 2015; Crosson Tr., 55:23-25, Mar. 25, 2015.)

147. The fluke tip that created the long hole in the Number Seven Port ballast tank left a scratch or score mark on a flap of steel located on the hull, which is referred to as Flap "A," where the hull first came into contact with the fluke.⁸⁰ (Bowman Tr., 127:15-130:12, Mar. 10, 2015; Crosson Tr., 43:12-44:10, Mar. 25, 2015; Appendix (Ex. "B-4"), Photograph of Score Mark, Ex.

⁷⁹ See Appendix (Ex. "B-2") for the presence of rocks and pebbles on what would be the bottom of the anchor in a "flukes-up" position when it was retrieved from the Delaware River. (Ex. D-2022.)

⁸⁰ See Appendix (Ex. "B-4") for a photograph of the score mark on Flap "A."

P-1093.) The score mark is at an angle of about 42° to the longitudinal centerline of the ship. (Bowman Tr., 107:19-108:18, 127:15-130:12, Mar. 10, 2015; Crosson Tr., 43:12-44:10, Mar. 25, 2015.) This angle indicates that the vessel was moving astern and to port when it contacted the anchor. (Bowman Tr., 109:16-24, Mar. 10, 2015; Crosson Tr., 77:19-78:1, Mar. 25, 2015.)

148. The scraping on what has been referred to as Flap “A” of the long hole was caused by the massive pressure of the ship passing over the anchor, which resulted in the tip of the fluke that created the scraping to bend. (Crosson Tr., 24:24-25:7, 43:16-44:25, 48:12-20, Mar. 25, 2015.) The fluke pierced the hull and became entrapped inside the hull. (Crosson Tr., 49:11-50:25, Mar. 25, 2015.)

149. With the continuing movement of the ship, the fluke’s penetration into the hull made the anchor rotate, causing the palm to accelerate upward and make a second hole in the Athos I’s hull—the round hole. (Bowman Tr., 128:12-129:5, Mar. 9, 2015; Crosson Tr., 53:17-25, Mar. 25, 2015.) The pressure created caused the anchor to spike upward, resulting in the palm at the other end of the anchor puncturing the hull and creating the round hole. (Crosson Tr., 50:22-52:15, Mar. 25, 2015.)

150. The upward thrust caused by the force of the rotation punched a hole in the Number Seven Center cargo tank containing the oil. (Bowman Tr., 109:23-112:22, Mar. 9, 2015; Crosson Tr., 20:6-21:9, Mar. 25, 2015.)

151. There were no score marks leading into the round hole. (Bowman Tr., 115:3-116:4, Mar. 10, 2015; Crosson Tr., 60:19-63:21, 64:22-66:17, Mar. 25, 2015.) The Athos I therefore did not initially contact the anchor by scraping over a tripping palm. (Bowman Tr., 109:23-112:22, Mar. 9, 2015; Crosson Tr., 50:18-51:17, Mar. 25, 2015.)

152. By puncturing the Number Seven Center cargo tank, oil began to pour out of the vessel with some speed. (Bowman Tr., 103:23-104:2, Mar. 10, 2015.) The oil created a scour mark in the riverbed, showing the path of the oil coming out of the vessel, which illustrated how the Athos I was moving astern and to port. (Bowman Tr., 104:7-105:4, 106:12-107:1, Mar. 10, 2015; Diagram of Ship's Track and Score Mark, Ex. P-1353.)

v. Athos I's Draft at the Time of the Allision

153. On November 26, 2004, when the Athos I struck the submerged anchor, the vessel had a sailing draft of 36 feet, 7 inches. (Bowman Tr., 157:7-10, Mar. 9, 2015.)

154. Mr. Bowman calculated the draft of the Athos I at 36 feet, 7 inches at the time of the casualty based on the departure draft and the calculated weights on the ship using his Seamaster software program. (Bowman Tr., 156:17-25, Mar. 9, 2015.)

155. By the time the Athos I had reached the entrance to the Delaware Bay, it had been sailing for six days. During this six-day voyage, the vessel burned fuel and fresh water was consumed, making the ship lighter in the water. (Bowman Tr., 20:15-23, Mar. 10, 2015.)

156. As a result of consuming fuel and fresh water during its voyage, the Athos I had a draft of about 36 feet, 4 inches when it reached the entrance to the Delaware Bay. (Bowman Tr., 7:21-8:15, Mar. 10, 2015.)

157. Additionally, as a result of consuming fuel and fresh water during its voyage, the Athos I was no longer sailing at an even keel. (Bowman Tr., 9:7-12, Mar. 10, 2015.) Rather, the Athos I was "trimmed by the bow," meaning that the bow of the ship was deeper in the water than the stern. (Bowman Tr., 9:7-12, 9:22-25, Mar. 10, 2015.) The change in trim was due to the consumption of fuel and water from tanks that were located on the aft of the ship. (Bowman Tr., 9:9-12, Mar. 10, 2015.)

158. The Athos I took on approximately 510 metric tons ballast water to restore it to an even keel. (Bowman Tr., 10:1-7, 12:25, Mar. 10, 2015.)

159. By taking on 510 tons of ballast to restore the vessel to an even keel, the vessel weighed more, and sank lower in the water. (Bowman Tr., 13:13-22, Mar. 10, 2015.)

160. After taking on the 510 tons of ballast, the Athos I had a mean draft of 36 feet, 7 inches. (Bowman Tr., 157:7-10, Mar. 9, 2015.)

161. No other ballast was taken on during the course of the voyage. (Bowman Tr., 61:8-16, Mar. 10, 2015.)

162. At the time of the casualty, the Athos I had a mean draft of 36 feet, 7 inches. (Bowman Tr., 157:7-10, Mar. 9, 2015.) This is the equivalent of 36.58 feet. At that point, the midship draft and the vessel were about on even keel. (Bowman Tr., 156:7-157:24, Mar. 9, 2015.) The bow draft was very close to the stern draft, so there was no significant trim on the ship at that time. (Bowman Tr., 156:7-157:24, Mar. 9, 2015.)

163. Ultimately, Mr. Bowman found, using the Seamaster program, that the Athos I's draft on arrival at Paulsboro was 36 feet, 7 inches. (Bowman Tr., 156:7-157:24, Mar. 9, 2015; 13:5-14:9, Mar. 12, 2015.) This was the draft at the time of the allision with the anchor.

164. The reliability of Mr. Bowman's Seamaster Program, and his testimony about verifying the accuracy of its findings with measurements taken by different individuals after the allision when cargo and ballast was shifted on board the Athos I to bring it back to even keel, confirm that the Athos I's draft was 36 feet, 7 inches before it struck the anchor.⁸¹

⁸¹ Mr. Bowman used additional methods to confirm that the Athos I had a draft of 36 feet, 7 inches at the time of the casualty. He confirmed the accuracy and reliability of his Seamaster program using the following post-incident observations: (1) Oscar Castillo, a crewmember, read the draft the morning after the casualty, on November 27, 2004; (2) Bob Umbdenstock, the salvage master, took a photograph of the ship the day after the casualty, on November 27,

vi. Athos I's Underkeel Clearance Before the Allision

165. The Athos I had at least 5 feet of underkeel clearance immediately before the allision.

166. On November 26, 2004, at 9:02 p.m., when the Athos I struck the anchor, the tide had been rising for “roughly 50 minutes to [one] hour.” (Capone Tr., 222:14-19, Mar. 18, 2015; Bowman Tr., 126:23-127:8, Mar. 9, 2015.)

167. At the time of the allision, the average depth of the water at the accident site was 41.45 feet Mean Lower Low Water (“MLLW”). (Capone Tr., 215:20-217:17, Mar. 18, 2015; Traykovski Tr., 85:5-16, Mar. 30, 2015.)

168. At the time of the allision, the tide was between 0.2 and 0.7 feet above MLLW. (Capone Tr., 215:20-216:13, Mar. 18, 2015.) As such, the water depth at the accident site was at least 41.65 feet.⁸²

169. Since the Athos I was in approximately 41.65 feet of fresh water and had a draft of 36 feet, 7 inches (which is equal to 36.58 feet) at the time of the casualty (Capone Tr., 215:20-217:17, Mar. 18, 2015; Bowman Tr., 157:10-15, Mar. 9, 2015), the vessel would have had approximately 5.07 feet of clear underkeel clearance had no obstruction been present.⁸³ Though the Athos I had approximately 5.07 feet of underkeel clearance, because the anchor in the “flukes-up” position

2004; and (3) Ken Edgar, a naval architect, read and recorded the draft three days after the casualty, on November 29, 2004. (Bowman Tr., 21:23-53:17, Mar. 10, 2015.) Mr. Bowman made adjustments to the observed drafts as necessary taking into account, among other factors, the vessel’s list, loss and transfer of cargo, flooding of tanks, and other changes to the vessel after the casualty. (Bowman Tr., 21:23-53:17, Mar. 10, 2015.) Mr. Bowman’s post-incident calculations were within normal tolerances of his calculation that the draft of the Athos I when it arrived near CARCO’s terminal was 36 feet, 7 inches. (Bowman Tr., 21:23-53:17, Mar. 10, 2015.)

⁸² 41.45 feet (MLLW) + 0.2 feet (increase from tide) = 41.65 feet (water depth).

⁸³ 41.65 feet (water depth) – 36.58 feet (arrival draft) = 5.07 feet (underkeel clearance).

protruded about 7 feet above the riverbed, it struck the hull and shortly thereafter the penetration occurred.

vii. Post-Incident Inspection of the Athos I

170. On November 27, 2004, at 7:36 a.m., David Hall (“Mr. Hall”) arrived on the Athos I to inspect the ship for the owners.⁸⁴ (Hall Tr., 111:1-5, 119:3:-7, Mar. 4, 2015.)

171. Mr. Hall noticed that the Athos I was listing heavily to the port side by the bow of the vessel. (Hall Tr., 111:20-23, Mar. 4, 2015.) To restore the ship back to an even keel and calculate the amount of cargo that was lost, he made a decision to put ballast into two of the ballast tanks—Number Four Starboard ballast tank and Number Seven Starboard ballast tank. (Hall Tr., 161:2-16, Mar. 4, 2015.) On November 28, 2004, this ballasting was accomplished and brought the Athos I back to an even keel.

172. On November 27, 2004, Mr. Hall did not notice anything out of the ordinary in the Athos I’s pump room.⁸⁵ (Hall Tr., 145:8-14, Mar. 4, 2015.) He did observe that the pump valve was lashed shut. (Hall Tr., 145:15-18, Mar. 4, 2015.) Lashing is a visual aid to indicate that the valve is closed and prevents it from opening due to vibrations on the ship. (Hall Tr., 145:23-146:6, Mar. 4, 2015.) The fact that the pump valve was lashed shut demonstrated that illicit ballast had not been added to or removed from the Athos I.

⁸⁴ Mr. Hall is a maritime surveyor. (Hall Tr., 97:11-98:11, Mar. 4, 2015.) He has thirty-three years of experience in the maritime industry and was hired by the owners of the Athos I to conduct an inspection of the vessel after the accident. (Hall Tr., 98:15-99:1, 102:8-14, Mar. 4, 2015.) Mr. Hall is a qualified Ship Inspection Reporting Inspector. (Hall Tr., 106:4-6, Mar. 4, 2015.) He has conducted over 200 vessel inspections. (Hall Tr., 107:17-21, Mar. 4, 2015.) In particular, he has performed inspections on oil tankers that are similar to the Athos I. (Hall Tr., 109:25-110:1, Mar. 4, 2015.)

⁸⁵ The pump room is an area on the ship containing pumps and additional equipment used for removing, adding, or distributing liquid cargo in the ship’s tanks.

173. Mr. Hall also inspected the ballast system. He watched the crew take soundings of the ballast tanks and determined that they were doing this procedure properly. (Hall Tr., 129:17-130:2, 137:12-18, Mar. 4, 2015.) He could find no major problems with the ballast tanks. (Hall Tr., 175:2-3, Mar. 4, 2015.) He went into the Number Six Port ballast tank, which is adjacent to the Number Seven Port ballast tank, to check that the soundings were working properly, and found that the tank was completely dry. (Hall Tr., 147:4-6, 150:7-152:20, Mar. 4, 2015.) There were no indications of ballast or recent ballast being present in the tank. He determined that there could not have been any illicit removal of ballast by the crew because the ship was listing so heavily that it would have been impossible to remove the water from the vessel. (Hall Tr., 178:9-16, Mar. 4, 2015.)

174. Through his inspection, Mr. Hall estimated that 264,335 gallons of crude oil had spilled into the Delaware River as a result of the accident. (Hall Tr., 170:3-12, Mar. 4, 2015; Letter from David Hall to Captain Sarubbi, Ex. P-1203.) He later refined his calculation by reducing it 14 gallons to 264,321 gallons. (Hall Tr., 171:4-21, Mar. 4, 2015; Ex. P-1358.)

175. In December 2004, the remaining cargo on the Athos I was unloaded at CARCO's berth.

176. The Athos I was then moved to dry dock in Mobile, Alabama, where the full extent of the damage was inspected.

viii. Allegations of Poor Navigation and Seamanship

177. CARCO alleges that the pilots, captain, and crew of the Athos I engaged in poor navigation and seamanship that caused or contributed to the accident, and that the following four actions demonstrate the poor navigation and seamanship. (Doc. No. 867 at 102-138.) First, the Athos I crew attempted to dock the vessel during an inappropriate stage of the tide. (*Id.* at 102.) Second, Frescati failed to conduct a proper master-pilot exchange, failed to prepare a proper voyage plan,

and failed to calculate the Athos I's underkeel clearance. (Id. at 130-155.) Third, Frescati violated pertinent federal regulations. (Id. at 112.) Fourth, the Athos I was unseaworthy. (Id. at 190-98.)

178. CARCO contends that Captain Bethel attempted to dock the Athos I at an inappropriate time. (Id. at 105.) In particular, CARCO alleges that he started to dock during low tide, when the tidal current was slightly ebbing, or was, at most, a slack current. According to CARCO, docking at low tide with an ebbing current was not within the suggested docking window set by the Docking Pilots Association for CARCO's Paulsboro berth. The docking window set by the Association for CARCO's Paulsboro berth allowed a ship of the Athos I's size, drawing up to 37 feet, 6 inches, to dock from the beginning of the flood current until one hour after high tide at the Billingsport Range. (Bethel Tr., 90:11-91:16, Mar. 17, 2015.)

179. The Court has already found that the Athos I attempted to dock at an appropriate time. Captain Teal observed that the tide was rising when the Athos I reached the docking site in the Delaware River channel. (Teal Tr., 78:10-79:20, 87:1-7, Mar. 16, 2015.) Similarly, Captain Bethel observed that the tide was rising when he boarded the Athos I. (Bethel Tr., 35:15-22, 36:12-17, Mar. 17, 2015.) The tide had been rising for approximately fifty minutes to one hour before the Athos I attempted to dock, and therefore was within the suggested docking window. (Capone Tr., 222:15-19, Mar. 18, 2015.)

180. The Third Circuit found "no indication in the record that the Athos I was attempting to dock at an inappropriate time." In re Frescati, 718 F.3d at 204 n.22.

181. CARCO also contends that Frescati failed to conduct a proper master-pilot exchange, failed to prepare a proper voyage plan, and failed to calculate the Athos I's underkeel clearance. (Doc. No. 867 at 130-55.)

182. As already noted, Captain Teal and Captain Markoutsis conducted an adequate master-pilot exchange.

183. Captain Bethel also engaged in a proper master-pilot exchange. When he first boarded the Athos I, he went up to the wheelhouse and had a lengthy discussion with Captain Teal. (Bethel Tr., 38:10-44:5, Mar. 17, 2015.) They discussed how the ship was handling, the navigation of the ship, and its draft. (Bethel Tr., 38:10-44:5, Mar. 17, 2015.) He also reviewed the pilot card. (Bethel Tr., 38:10-44:5, Mar. 17, 2015.)

184. Captain Betz also watched the testimony of Captain Bethel. He confirmed that Captain Bethel had engaged in an adequate and appropriate master-pilot exchange. (Betz Tr., 47:3-23, Mar. 18, 2015.)

185. CARCO also alleges that Frescati failed to abide by federal regulations governing voyage planning and underkeel clearance.⁸⁶ Captain Teal explained, however, that he discussed the

⁸⁶ CARCO contends that Frescati violated 33 C.F.R. § 157.455(a)-(b), which directs a vessel crew to anticipate the minimum underkeel clearance a ship will need to safely transit a waterway. This Section provides:

- (a) The owner or operator of a tankship, that is not fitted with a double bottom that covers the entire cargo tank length, shall provide the tankship master with written under-keel clearance guidance that includes—
 - (1) Factors to consider when calculating the ship's deepest navigational draft;
 - (2) Factors to consider when calculating the anticipated controlling depth;
 - (3) Consideration of weather or environmental conditions; and
 - (4) Conditions which mandate when the tankship owner or operator shall be contacted prior to port entry or getting underway;

anticipated underkeel clearance with Captain Markoutsis during the master-pilot exchange. (Teal Tr., 53:19-22, 164:17-19, Mar. 16, 2015.) He stated that they knew there would be

if no such conditions exist, the guidance must contain a statement to that effect.

(b) Prior to entering the port or place of destination and prior to getting underway, the master of a tankship that is not fitted with the double bottom that covers the entire cargo tank length shall plan the ship's passage using guidance issued under paragraph (a) of this section and estimate the anticipated under-keel clearance. The tankship master and the pilot shall discuss the ship's planned transit including the anticipated under-keel clearance. An entry must be made in the tankship's official log or in other onboard documentation reflecting discussion of the ship's anticipated passage.

33 C.F.R. § 157.455(a)-(b). In addition to this regulation on underkeel clearance, CARCO asserts that Frescati violated IMO Resolution A.893(21) and Regulation 34 of Chapter V of the Safety of Life at Sea ("SOLAS") Convention, for allegedly failing to prepare a voyage plan. The IMO resolution provides that, "on the basis of the fullest possible appraisal, a detailed voyage or passage plan should be prepared which should cover the entire voyage or passage from berth to berth, including those areas where the services of a pilot will be used." IMO Resolution A.893(21). Similarly, the SOLAS Convention provides:

- 1 Prior to proceeding to sea, the master shall ensure that the intended voyage has been planned using the appropriate nautical charts and nautical publications for the area concerned, taking into account the guidelines and recommendations developed by the Organization.
- 2 The voyage plan shall identify a route which:
 - ...
 - .4 takes into account the marine environmental protection measures that apply, and avoids, as far as possible, actions and activities which could cause damage to the environment.
- 3 The owner, the charterer, or the company, as defined in regulation IX/1, operating the ship or any other person shall not prevent or restrict the master of the ship from taking or executing any decision which, in the master's professional judgment, is necessary for safe navigation and protection of the marine environment.

SOLAS ch. V, reg. 34.

sufficient underkeel clearance to transit up river. (Teal Tr., 164:17-19, Mar. 16, 2015.) In addition, both Captain Teal and Captain Markoutsis adequately planned for the voyage by discussing the draft of the vessel, the stages of the tide, the weather conditions, and the ship's handling, among other things. (Teal Tr., 51:12-52:18, 160:11-15, Mar. 16, 2015.) Captain Markoutsis planned for the voyage from Puerto Miranda, Venezuela, to Paulsboro, New Jersey. This included loading the Athos I only to a draft of 36 feet, 6 inches to safely exit Puerto Miranda and to safely enter Paulsboro. (Teal Tr., 135:23-136:2, Mar. 16, 2015; Markoutsis Tr., 198:18-199:3, 200:7-201:13, Oct. 13, 2010.) It included planning for the passage through the Caribbean Sea and the Atlantic Ocean, until the Athos I reached the entrance to the Delaware Bay. Once the vessel arrived on the Delaware River, Captain Markoutsis continued to plan for the remainder of the voyage with Captain Teal. (Teal Tr., 51:12-52:18, 160:11-15, Mar. 16, 2015.) The Athos I crew adequately planned the voyage, including the underkeel clearance, from Puerto Miranda, Venezuela to the entrance to Delaware Bay, and from there to Federal Anchorage Number Nine. (Betz Tr., 20:7-24:3, Mar. 18, 2015.)

186. Although CARCO alleges that the Athos I crew destroyed the original written voyage plan, based on all the Court's findings in this case, no credible inference can be drawn that what was contained in this voyage plan caused or contributed to the allision with the submerged, unknown anchor.

187. CARCO alleges that the Athos I crew failed to abide by other regulations, resulting in poor navigation and seamanship. (Doc. No. 867 at 112.) For instance, CARCO alleges that Frescati did not have a wheelhouse poster on the bridge of the ship, in violation of federal regulations and

resolutions.⁸⁷ However, the use of wheelhouse posters are recommended, not required. Captain Betz testified that it was not customary for a river pilot to review the wheelhouse poster or the voyage plan during the master-pilot exchange. (Betz Tr., 24:4-19, Mar. 18, 2015.) The absence of a wheelhouse poster did not cause or contribute to the casualty.

⁸⁷ Specifically, CARCO alleges that Frescati violated 33 C.F.R. § 157.450 because the vessel did not have a wheelhouse poster. This regulation provides that “[a] tankship owner, master, or operator shall comply with International Marine Organization (IMO) Resolution A.601(15), Annex sections 1.1, 2.3, 3.1, and 3.2, with appendices.” This Resolution provides in relevant part:

1 Introduction

1.1 . . . Administrations are recommended to require that the [maneuvering] information given herewith is on board and available to navigators.

1.2 The [maneuvering] information should be presented as follows:

- .1 Pilot card
- .2 Wheelhouse poster
- .3 [Maneuvering] booklet

2 Application

2.1 The Administration should recommend that [maneuvering] information, in the form of the models contained in the appendices, should be provided as follows:

- .1 for all new ships to which the requirements of the 1974 SOLAS Convention, as amended, apply, the pilot card should be provided;
- .2 for all new ships of 100 metres in length and over, and all new chemical tankers and gas carriers regardless of size, the pilot card, wheelhouse poster and [maneuvering] booklet should be provided.

2.2 The Administration should encourage the provision of [maneuvering] information on existing ships, and ships that may pose a hazard due to unusual dimensions or characteristics.

IMO Resolution A.601(15) (emphasis added).

IMO is a United Nations agency headquartered in London, England. It sponsors most international conventions that deal with pollution of the sea. It has no enforcement authority, but it serves the important function of “coordinating the uniformity of ship regulations and inducing cooperation among nations with regard to the economic and technical aspects of maritime commerce.” 2 Thomas J. Schoenbaum, Admiralty & Maritime Law § 18-1, at 268 (5th ed. 2012).

188. Finally, CARCO contends that the Athos I was unseaworthy. (Doc. No. 867 at 190-205.) In particular, CARCO alleges that Frescati failed to maintain the ballast system, failed to man the vessel with a competent crew, and failed to maintain a proper safety management system. (*Id.*)

189. CARCO alleges that problems with the Athos I's ballast system caused the vessel to take on extra ballast, resulting in an increase in the ship's draft. (*Id.* at 193.) The Court has already found, however, that the Athos I did not take on any additional ballast beyond the 510 metric tons that the crew used to bring the vessel back to an even keel. Any problem with the ballast system did not cause or contribute to the oil spill, and did not render the vessel unseaworthy.

190. CARCO alleges that the crew was not competent. Tsakos trained the Athos I crew. (Athos I Inspections & Audits, Ex. P-1310.) It ensured that the ship's navigational officers were properly licensed and had appropriate certificates of competency for their rank. (Ex. P-286; Ex. P-289; Ex. P-295; Ex. P-298; Ex. P-301.) Witnesses such as Mr. Hall observed the crew perform tasks and found them to be competent. (Hall Tr., 136:9-137:18, Mar. 4, 2015.) Contrary to CARCO's contention, the Court finds that the Athos I pilots, captain, and crew were competent and were properly trained.

191. Finally, CARCO alleges that the Athos I pilots, captain, and crew failed to maintain a proper safety management system in violation of the Safety of Life at Sea ("SOLAS") standards, the International Safety Management ("ISM") code, and other federal regulations, which would make the vessel unseaworthy. (Doc. No. 867 at 199.) Specifically, CARCO alleges a violation of IMO Resolution A.741(18) and 33 C.F.R. §§ 96.220-96.250, which directed vessels to implement a written safety management system.⁸⁸

⁸⁸ Federal regulations for safety management systems are set forth in §§ 96.220 to 96.250 of the Federal Code of Regulations. 33 C.F.R. §§ 96.220-96.250. For example, § 96.220 provides:

192. Tsakos had an established and comprehensive safety management system. (Ex. P-332.) This system included a maintenance plan that covered all mechanical components of the Athos I. (Id.) Vessels under its management and ownership, including the Athos I, were regularly inspected. Therefore, there was sufficient compliance with these regulations.

(a) The safety management system must document the responsible person's—

- (1) Safety and pollution prevention policy;
- (2) Functional safety and operational requirements;
- (3) Recordkeeping responsibilities; and
- (4) Reporting responsibilities.

(b) A safety management system must also be consistent with the functional standards and performance elements of IMO Resolution A.741(18).

Id.

IMO Resolution A.741(18) has recommendations for safe operation of ships and for pollution prevention, and strongly urges governments to implement the ISM Code. IMO Res. A.741(18). For example, IMO Resolution A.741(18) Annex 1.4 provides:

1.4 Functional requirements for a safety-management system (SMS)

Every Company should develop, implement and maintain a safety-management system (SMS) which includes the following functional requirements:

- .1 a safety and environmental-protection policy;
- .2 instructions and procedures to ensure safe operation of ships and protection of the environment in compliance with relevant international and flag State legislation;
- .3 defined levels of authority and lines of communication between, and amongst, shore and shipboard personnel;
- .4 procedures for reporting accidents and non-conformities with the provisions of this Code;
- .5 procedures to prepare for and respond to emergency situations; and
- .6 procedures for internal audits and management reviews.

IMO Res. A.741(18) Annex 1.4.

ix. Allegations of Spoliation

193. CARCO contends that Frescati spoliated evidence. In particular, CARCO alleges that Frescati lost, destroyed, or altered the following documents: the original voyage plan of the Athos I, the rough deck log, the cargo control room log, the pump room patrol logs, the wheelhouse poster, and the original Anko Loadicator data.⁸⁹ (Doc. No. 754.)

194. As will be explained in further detail, infra, Section IV(E), the Court finds that Frescati did not intentionally or in bad faith lose, destroy, fabricate, or withhold any relevant evidence. In addition, the evidence that CARCO alleged was spoliated would not have caused or contributed to the Athos I's allision with a submerged, unknown anchor.

F. Oil Spill Response

195. The oil spill response went into effect immediately after the casualty on November 26, 2004 and extended into January 2005, when the oil finally was removed from the Delaware River environment.

196. Pursuant to OPA, Frescati had in place a preexisting vessel response plan, which covered what to do in the event of a “worst case discharge” oil spill. 33. U.S.C. § 1321(j)(5). Frescati’s vessel response plan outlined the responsibility of the captain in the event of an emergency. It also identified the primary Oil Spill Response Organization (“OSRO”) that contracted with Frescati to provide oil spill cleanup services. (Benson Tr., 133:1-134:8, Mar. 23, 2015.)

⁸⁹ The Anko Marine Load Planner, also known as the Anko Loadicator, was a computer program used aboard the Athos I to aid in cargo loading operations. The Anko Loadicator calculated the weights loaded onto a vessel, among other things. The Anko reports included the calculated data.

197. The vessel response plan identified Courtney Ben Benson (“Mr. Benson”) as the qualified individual who had the authority to implement oil spill response operations.⁹⁰ (Benson Tr., 137:21-138:2, 139:9-140:21, 141:19-142:24, Mar. 23, 2015.) Mr. Benson worked with Captain John Sarubbi, the federal on-scene coordinator (“FOSC”), who managed the oil spill cleanup.⁹¹ (LaFerriere Tr., 6:21-24, Mar. 23, 2015.) The FOSC used the incident command system to direct and manage the oil spill response. The incident command system is an “organized structure and an organized way with processes and principles on how to respond to an incident.” (LaFerriere Tr., 33:17-24, Mar. 23, 2015.)

198. Captain Sarubbi requested assistance from the Coast Guard’s specialized strike team, which provides advanced expertise in oil spill responses. (LaFerriere Tr., 6:21-24, Mar. 23, 2015.)

⁹⁰ Mr. Benson has extensive experience in responding to oil spills and the required cleanup effort by working at an OSRO. This is an organization with an official designation and certification given under OPA. (Benson Tr., 128:20-22, Mar. 23, 2015.) At the time of the Athos I oil spill, Mr. Benson worked for the O’Brien Group, an OSRO which was then known as O’Brien’s Oil Pollution Service of Gretna, Louisiana. (Benson Tr., 125:18-25, Mar. 23, 2015.) Of the ten largest oil spills in the country posted on the Coast Guard website, Mr. Benson has worked on at least six. (Benson Tr., 132:13-16, Mar. 23, 2015.) Among many others, Mr. Benson worked on the following oil spill responses: the BP Macondo Blowout (2010); Enbridge Pipeline Rupture (2010); TVA Coal Ash Sediment Pond Rupture (2008); COSCO Busan Oil Spill (2007); and M/V Cathy M. Settoon Oil Spill (2007). (Benson Tr., 131:7-18, Mar. 23, 2015.) In these responses, Mr. Benson worked in the capacity of either the assigned O’Brien Group Executive Vice President, the qualified individual, or the incident commander. (Benson Tr., 133:5-10, Mar. 23, 2015.)

During the Rule 63 proceeding, Mr. Benson gave a detailed explanation of the cleanup response process in this case, the unique challenges of the Delaware River, and the judgment calls that he made along the way. He justified the cost of the response, and the consequences that would have ensued had he made different decisions with respect to compensating responders and obtaining equipment and supplies.

⁹¹ At the time of the Athos I oil spill, Captain John Sarubbi (“Captain Sarubbi”) was the Coast Guard commander of the Port of Philadelphia. He assumed the role of the federal on-scene coordinator during the Athos I oil spill response.

Captain Roger LaFerriere (“Captain LaFerriere”) was the commanding officer of the Coast Guard Atlantic strike team.⁹² (LaFerriere Tr., 5:21-6:1, Mar. 23, 2015.)

199. The Athos I oil spill was complex. The spill location within a navigable waterway made the response difficult to manage, “primarily due to winds, currents, and tides.” (LaFerriere Tr., 12:20-25, Mar. 23, 2015.) Overall, the oil spill affected “about 70 miles of waterway” on the Delaware River. (LaFerriere Tr., 11:7-11, Mar. 23, 2015.) Other vessels were stalled from passing through polluted portions of the Delaware River, temporarily crippling the local shipping industry. Additionally, weather conditions during the cleanup made the response difficult. Given the freezing temperatures from November through January, responders needed to be trained to deal with the inclement weather conditions and were required to wear protective equipment to prevent hypothermia. (Benson Tr., 172:10-16, 173:2-8, Mar. 23, 2015.)

200. The type of oil that was spilled also made the response more complex. Heavy crude oil is difficult to deal with. It sticks to vessels and shorelines, and must be “physically manually removed.” (Benson Tr., 158:12-21, 158:25-159:15, Mar. 23, 2015.) Over 100 vessels were

⁹² Strike teams are highly trained in oil spill responses. Captain LaFerriere completed two tours of duty with the Atlantic strike team: the first as an operations officer from 1991 to 1995, and the second as a commanding officer from 2003 to 2006. (LaFerriere Tr., 6:15-20, Mar. 23, 2015.) He holds specialized certifications, such as a “type 1 certification,” which is for an incident of national significance, such as the Deepwater Horizon oil spill. (LaFerriere Tr., 35:11-17, 35:25-36:3, Mar. 23, 2015.) He has extensive experience working on oil spill cleanup responses, including spills such as the Gulf Deepwater Horizon, Colonial Pipeline, San Jacinto River, Morris Berman, Tank Barge Vista Bella, Virgin Islands Water and Power Authority, and Exxon Valdez, all of which were major oil spills. (LaFerriere Tr., 9:2-8, Mar. 23, 2015.) In discussing the Athos I spill response, he explained the planning involved, including the creation of a daily incident action plan to assist in the response. He also described the unique challenges and considerations associated with the Delaware River. Finally, he consistently defended judgment and spending decisions, explaining how additional cost was avoided through responsible cleanup efforts. Captain LaFerriere stated, “this spill [response], in particular, is the one I’m the most proud of.” (LaFerriere Tr., 81:7-8, Mar. 23, 2015.) Captain LaFerriere’s testimony confirmed his extensive experience and thoughtful decision-making in oil spill responses.

contaminated and required not only cleaning but also winterization. (Benson Tr., 176:19-177:13, 180:23-181:4, Mar. 23, 2015.) In addition, tar balls formed in the waterway, requiring manual removal.⁹³ (Benson Tr., 160:12-18, Mar. 23, 2015.) The remaining oil held on the Athos I also required removal, and the ship needed to be stabilized before it could be moved for salvage. (LaFerriere Tr., 19:14-20:13, Mar. 23, 2015.)

201. Over 1,800 people were dispatched in the oil spill response. (LaFerriere Tr., 11:12-14, Mar. 23, 2015.) Personnel came from private contractors, as well as federal, state, and local governmental agencies. (LaFerriere Tr., 12:3-19, Mar. 23, 2015.)

202. Mr. Benson explained the general objectives of the Athos I oil spill response. The top priority in any oil spill response is safety. (Benson Tr., 174:25-175:3, Mar. 23, 2015.) The second priority is “to facilitate vessel movement in affected port areas.” (Benson Tr., 175:4-10, Mar. 23, 2015.) This is imperative for minimizing the economic impact of the spill and for resuming the local shipping industry. (Benson Tr., 175:11-16, Mar. 23, 2015.) Third, spill responses prioritize the decontamination of other vessels to prevent the spread of pollution. (Benson Tr., 175:17-176:16, Mar. 23, 2015.) Both Mr. Benson and Captain LaFerriere explained that the national contingency plan does not prioritize cost minimization when responding to an emergency oil spill. (Benson Tr., 174:25-176:12, Mar. 23, 2015; LaFerriere Tr., 27:2-11, Mar. 23, 2015.)

⁹³ Mr. Benson described tar balls as follows:

Tar balls are more coagulated clumps, which we experienced as well. The further the oil got away from the source, drifted downstream, the more sediment it picked up, it would coagulate into a ball, okay, and then break apart into smaller little tar balls. And then they would be carried by the current and in some cases wind driven up against the shoreline.

(Benson Tr., 160:12-18, Mar. 23, 2015.)

203. To achieve these objectives while simultaneously cleaning up the spilled oil, the responders used the incident command system and created an incident action plan, which included the daily objectives and work assignments. Work assignments were itemized on standard forms called “ICS 204 assignment lists.” Each work assignment identified personnel and equipment needed to complete the task. (Benson Tr., 187:10-188:22, Mar. 23, 2015.) Supervisors, monitors, and even helicopters were used to survey the tasks to ensure that each assignment was being completed as quickly as possible. (Benson Tr., 191:7-193:14, Mar. 23, 2015.) At the end of each day, every supervisor was required to submit documentation on the work completed, “itemizing labor, equipment, materials, and supplies on a day-to-day basis.” (Benson Tr., 187:10-21, Mar. 23, 2015.) These daily support sheets were submitted to the finance team of the oil spill response, which conducted audits to verify expenses. (Benson Tr., 194:22-195:13, Mar. 23, 2015.) The finance department also used an automated verification system to inspect contractor invoices that came in daily. (Benson Tr., 210:3-211:12, Mar. 23, 2015.)

204. Mr. Benson made sound business decisions in responding to the Athos I oil spill. He explained that from November 27, 2004 to December 16, 2004 the response was in the emergency phase, where responders were focused on cleanup of the oil and preventing further ecological damage. (Benson Tr., 217:8-14, Mar. 23, 2015.) By December 16, 2004, the response transitioned from the emergency phase into the project phase, when Mr. Benson was able to look ahead beyond the next day, and was able to re-negotiate contracts and cut costs for the remaining cleanup efforts. (Benson Tr., 214:24-215:6, 215:9-14, 216:4-11, 216:16-217:7, Mar. 23, 2015.) To minimize costs, Mr. Benson reduced rates that contractors were able to charge. (Benson Tr., 225:8-23, Mar. 23, 2015.) This included auditing contractors’ bills and negotiating expenses on an ongoing basis. (Benson Tr., 227:7-228:18, Mar. 23, 2015.) He also

centralized the supply of equipment and materials to one main distributor to reduce this expense. (Benson Tr., 226:7-227:3, Mar. 23, 2015.) Furthermore, Mr. Benson reduced the overall per diem rate, which was a fixed cost for personnel lodging and meals. (Benson Tr., 228:19-230:9, Mar. 23, 2015.)

205. Captain LaFerriere testified that the Athos I oil spill response had the “best use of the incident command system” that he had seen in all of the spill responses in which he had been involved. (LaFerriere Tr., 81:8-10, Mar. 23, 2015.)

G. Costs Incurred from the Casualty

206. Frescati initially incurred over \$143 million in cleanup costs and damages resulting from the casualty. The Government reimbursed Frescati nearly \$88 million for expenses associated with the oil spill. Frescati’s remaining damage claim can be organized into six categories:

Damages Category	Frescati’s Claimed Damages
1. OPA Removal Costs (Ex. P-1419)	\$45,317,511
2. Non-OPA Response Costs (Ex. P-1420)	\$1,541,597.79
3. Salem Plant Settlement (Ex. P-1422)	\$1,500,000
4. Unrepaired Hull Damage (Ex. P-1417a)	\$438,542.25
5. Vessel/Misc. Port Expenses (Ex. P-1415, P-1416)	\$50,642.01
6. Stipulated Damages (including hull damage, loss of hire, and natural resource damage assessment) (Stipulation Doc. Nos. 526/233, 518/234)	\$6,649,082.90
Total	\$55,497,375.95

207. In the first category, Frescati seeks damages totaling \$45,317,511 for unreimbursed OPA oil spill removal costs. (Doc. No. 862 at 29.) As the responsible party under OPA, Frescati initially bore the cost of the oil spill response. 33 U.S.C. § 2702(a). Because OPA sets liability limits for cooperative responsible parties, an incentive existed for Frescati to respond quickly to the oil spill to limit its financial exposure. (LaFerriere Tr., 118:10-119:4, Mar. 23, 2015; 33 U.S.C. §

2704.) Frescati was able to limit its liability under the provisions of OPA to \$45,474,000 as the cost incurred to clean up the oil. 33 U.S.C. § 2704 (2013). Moreover, Frescati reduced its OPA removal costs by \$156,489 by selling equipment it purchased for the cleanup. (Ex. P-1419.)

208. These costs were reasonable. As noted in the testimony of Mr. Benson, Frescati monitored all costs associated with the oil spill response and reduced these costs when possible. For instance, Frescati negotiated reduced rates with personnel after the emergency phase of the spill response, even while the efforts continued. (Benson Tr., 244:12-245:9, Mar. 23, 2015.) It also reduced per-diem rates after the emergency phase of the spill response. (Benson Tr., 244:12-245:9, Mar. 23, 2015.) Additionally, it established a central supply system. (Benson Tr., 226:4-227:6, Mar. 23, 2015.) Frescati was able to reduce price mark-ups by negotiating directly with vendors. To monitor these costs, it organized daily invoices for the entire response effort.

209. In support of the reasonableness of the payments, Frescati presented testimony and opinions of several witnesses and also relied upon the testimony of Government witness Donna Hellberg (“Ms. Hellberg”), the Lead Claims Manager in the Claims Adjudication Division of the National Pollution Funds Center (“NPFC”).⁹⁴ The Frescati team was confronted with an emergency oil spill cleanup effort and Mr. Benson emphasized that cost containment was not the first priority during the initial phase of the cleanup. Time was of the essence and contractors were required to secure all necessary equipment and manpower without an initial concern for cutting costs. Ms.

⁹⁴ Ms. Hellberg is quite knowledgeable about the oil spill cleanup process. At the Coast Guard’s National Pollution Funds Center, she is the Lead Claims Manager. Ms. Hellberg “adjudicate[s] the majority of all large complex removal cost claims, as well as review[s] and approve[s] adjudication for removal cost claims of other managers.” (Hellberg Tr., 64:4-10, Mar. 24, 2015.) Ms. Hellberg explained that for the Athos I oil spill, she went to the Unified Command Incident Command Post. She explained, “I went there to see the operations. . . . I also went to get an appreciation of the magnitude of the spill. . . . And I also spoke with individuals that were within the unified command.” (Hellberg Tr., 65:6-13, Mar. 24, 2015.)

Hellberg, Mr. Benson, and Captain LaFerriere amply justified the reasonableness of the payment system and the size of the payments made to complete the cleanup.

210. During the pre-federalization phase of an oil spill response, the responsibility for response and payment lies with the responsible party. (LaFerriere Tr., 86:12-14, Mar. 23, 2015.) If Frescati had not properly responded to the oil spill as the responsible party under OPA, and the Coast Guard had taken over initially and assumed responsibility for the cleanup, the total cost of the oil spill response would have dramatically increased, and probably would have been “2 to 3 times more expensive.” (LaFerriere Tr., 83:1-12, 86:12-14, 87:19-88:3, Mar. 23, 2015.)

211. Throughout the cleanup effort, Frescati faced the threat of early federalization if it did not carry out its functions efficiently as required by OPA. Mr. Benson explained, “[i]f we fail[ed] in any component . . . if we fail[ed] to support our contractors and the contractors fail[ed] to perform in the field with fear of not being paid, for example, the Coast Guard ha[d] full authority to step in and federalize that component of the spill.” (Benson Tr., 144:10-14, Mar. 23, 2015.) Mr. Benson further stated, “if the Coast Guard was to intercede and federalize the spill, costs are going to rise dramatically . . . it could be punitive to the course of treble damages overall.” (Benson Tr., 144:24-145:3, Mar. 23, 2015.)

212. Ms. Hellberg reviewed the claim documents presented by Frescati, which included invoices, proof of payment, dailies, receipts, and contemporaneous records that corroborated the expenses incurred. (Hellberg Tr., 69:16-23, Mar. 24, 2015.)

213. In the course of adjudicating Frescati’s claim for reimbursement, Ms. Hellberg reviewed in excess of five feet of documents. (Hellberg Tr., 134:7-9, Mar. 24, 2015.) In total, Ms. Hellberg stated that Frescati provided more than 53,000 pages of documentation to support its claim submission. (Hellberg Tr., 87:6-12, Mar. 24, 2015.)

214. Frescati's second category of damages is non-OPA removal costs. (Doc. No. 862 at 11.) These costs are for expenses that the NPFC deems not "OPA compensable," and total \$1,541,597.79. (Doc. No. 862 at 74.) These expenditures include costs incurred to manage third-party claims, to decontaminate recreational boats, and to remove the anchor and pump casing. (Id. at 75-77.)

215. Frescati had expenses in managing the third-party claims. In a large and complex oil spill, there are many third-party claims that are made and must be handled on an on-going basis, concurrently with the oil spill cleanup efforts. Hudson Marine Management Services ("HMMS") charged \$873,783.08 for managing the third-party claims. (Ex. P-1420.) Third-party claims were made for contaminated or damaged marinas, wharfs, or boats. HMMS organized how each would be resolved. Third party claimants were given the option of accepting money for the claim or having their property cleaned. (Ex. P-1280.) When a claimant elected to have its property cleaned, HMMS directed the claimant to Global Response Services, Inc. ("Global") to do this work.

216. Frescati incurred costs associated with cleaning recreational boats that were contaminated by the oil spill. Over 100 vessels were contaminated and required not only cleaning but also winterization. (Benson Tr., 176:19-177:13, 180:23-181:4, Mar. 23, 2015.) Frescati paid Global \$386,925.43 to set up and operate recreational boat cleaning and winterizing stations. (Ex. P-1420.) Of these costs, \$2,475 was deemed compensable by the NPFC. (Ex. P-1419.) Along with Global, E.A. Renfroe ("Renfroe") was paid \$233,091.48 to assist in decontaminating and repairing boats damaged by the oil spill. For example, repairs consisted of fixing and replacing boat equipment such as power washers, air compressors, and pumps. This work was essential to the oil spill response because it cleaned contaminated vessels that were in the Delaware River. If

Frescati had failed to clean these boats, oil would have continued to pollute the Delaware River well beyond the end of the cleanup effort. (Benson Tr., 175:4-176:16, Mar. 23, 2015.)

217. Frescati paid for costs associated with the removal of the anchor and pump casing in order to determine how the Athos I was holed. It contracted with Weeks Marine, Inc. (“Weeks Marine”) and Environmental Protection Engineering, S.A. (“EPE”) for this service. Weeks Marine charged \$26,716.20 for retrieving these two items, which included the cost of marine equipment used for removal operations (i.e., a barge, cranes, and other salvage equipment). (Ex. P-1420.) Additionally, EPE was paid \$23,556.60 for oversight and consulting in response to the casualty. Id. Frescati paid for these services in order to learn what contacted the Athos I to cause the casualty, and to remove obstructions from the river bottom, which were a hazard to navigation.

218. Frescati’s third category of damages is for an expense of \$1,500,000 associated with the Salem Plant Settlement. (Ex. P-1422.) Frescati settled a third-party claim submitted by the Salem Nuclear Power Plant. When oil spilled into the Delaware River, the Salem Nuclear Power Plant immediately had to shut down its nuclear reactors, because oil started to appear in the power plant’s water supply intakes. Turning the reactors off avoided damaging the reactors’ intake and cooling systems. The Salem Nuclear Power Plant first submitted a claim to the NPFC for lost profits and other costs incurred due to the emergency shutdown. The NPFC adjudicated this claim for more than \$30,000,000, not including interest. Subsequently, in November of 2008, the Salem Nuclear Power Plant asserted a claim against Frescati for more than \$4,600,000, representing interest that the NPFC had refused to pay because the NPFC is not statutorily authorized to pay interest on its claims awards. Frescati settled this suit for \$1,500,000.

219. The fourth category of damages is for unrepainted hull damage to the Athos I, which totaled \$438,542.25. (Ex. P-1417a.) This claim is based on unreported damage that the Athos I sustained, which was discovered when the vessel was dry docked in Mobile, Alabama. The damage could not be repaired in Mobile because that port did not have the capability to manage the volume of contaminated liquid still aboard the Athos I. (Ex. P-1429.) BMT Salvage inspected the Athos I, itemized the repairs, and estimated that the remaining repairs would cost \$438,542.25. (Ex. P-1417a.)

220. The fifth category of damages is described as “vessel/miscellaneous port expenses.” (Doc. No. 862 at 81.) These costs totaled \$50,642.01 for stern tube oils,⁹⁵ vessel stores, and the services of BMT Salvage. (Exs. P-1429, P-1416.) Between November 26, 2004 and February 3, 2005, Frescati incurred an expense of \$15,796 to supply the vessel with stern tube oil and stores during detention. Additionally, Frescati incurred \$34,846.01 for BMT Salvage’s marine survey and salvage work related to the casualty. CARCO does not contest this category of expenses.

221. Frescati seeks recovery of stipulated damages in the amount of \$6,649,082.90. (Doc. No. 862 at 82.) Frescati and CARCO have stipulated to the amount of damages for three items: hull damage, loss of hire, and a natural resource damage assessment. (Doc. Nos. 518, 526.) Frescati seeks to recover \$3,925,585.11 for hull damages, which represents costs it incurred to find and remove the anchor, to repair the Athos I temporarily to facilitate the move from the Port of Philadelphia to a dry dock in Mobile, Alabama, and to permanently repair the hull plates damaged by the anchor in the approach to CARCO’s berth. (Doc. No. 863 ¶ 30.) Frescati also asserts that it is entitled to damages in the amount of \$2,100,000 for loss of hire to compensate it

⁹⁵ Stern tube oil is a lubricant used for rust protection and to prevent corrosion on the stern tube of a ship. The stern tube is a long circular tube that supports the propeller shaft of the ship.

for its lost earnings while the Athos I was out of use and awaiting repairs. (*Id.* ¶ 32.) Finally, Frescati seeks to recover \$623,497.79, listed on the damages chart as the natural resource damage assessment, for costs it incurred during the early phases of the oil spill cleanup while working with the United States Fish & Wildlife Service and other federal and state trustees to engage in a preliminary evaluation of the environmental damage the oil spill caused. (*Id.* ¶ 34.)

H. Prejudgment Interest

222. The casualty occurred over a decade ago, and an award of prejudgment interest is warranted in this case. Both Frescati and CARCO acknowledge, but dispute, the method of calculating prejudgment interest. Frescati's expert, Dr. William Dunkelberg, and CARCO's expert, Dr. Kenneth Boudreaux, offered opinions on the appropriate prejudgment interest rate to be used here, based in part on which entity they believed ultimately paid for the cost of the cleanup, and the rate at which this entity would borrow funds to cover this expense. Dr. Dunkelberg assumed that either Frescati or Tsakos paid for the cost of the cleanup, and opined that the United States Prime Rate was the most accurate rate to be applied. (Dunkelberg Tr., 30:3-31:3, 32:17-19, Mar. 26, 2015.) He was not clear on how he arrived at the assumption that Frescati or Tsakos paid for the cleanup. He stated, "I think I knew that the payment was made by the P&I Club. But when you ask who makes the payment, it's the members of the club who sent their contributions to the P&I Club." (Dunkelberg Tr., 54:4-7, Mar. 26, 2015.)

223. Conversely, Dr. Boudreaux explained that he had not seen evidence of payments, but he was told that the United Kingdom P&I Club and the International P&I Club made payments for more than 90% of the cleanup efforts. (Boudreaux Tr., 34:23-35:12, Apr. 9, 2015.) Dr. Boudreaux noted that "P&I Clubs are . . . mutual associations that fund themselves by draws . . . or calls on their members to contribute to the reserves Being mutual companies, they don't

go outside to borrow money the way we are talking about here. If they needed money, they would issue a call to their members.” (Boudreux Tr., 38:15-22, Apr. 9, 2015.) Dr. Boudreux conceded that he had not been provided with any “concrete evidence about who paid what and when with respect to Frescati or Tsakos.” (Boudreux Tr., 30:22-23, Apr. 9, 2015.)⁹⁶

224. The most likely entity to have paid ultimately for the cleanup effort was the International Group of P&I Clubs as a mutual association which would indemnify its members, in this case Tsakos and Frescati. However, no documentation was provided to demonstrate that this entity borrowed funds to pay for the cleanup or related expenses.

225. CARCO asserts that if prejudgment interest should be awarded at all, it should be calculated in one of two ways. First, CARCO argues that the interest rate should be the United States Treasury Rate set forth in 28 U.S.C. § 1961(a).⁹⁷ Second, in the alternative, CARCO asserts that the interest rate should be the London Interbank Offered Rate (“LIBOR”) plus 0.5%. (Boudreux Tr., 57:3-8, Apr. 9, 2015.)

⁹⁶ Since the Government reimbursed Frescati nearly \$88 million, both Dr. Dunkelberg and Dr. Boudreux essentially were speculating about which entity finally paid the balance of about \$55 million.

⁹⁷ 28 U.S.C. § 1961(a) provides:

Interest shall be allowed on any money judgment in a civil case recovered in a district court. Execution therefor may be levied by the marshal, in any case where, by the law of the State in which such court is held, execution may be levied for interest on judgments recovered in the courts of the State. Such interest shall be calculated from the date of the entry of the judgment, at a rate equal to the weekly average 1-year constant maturity Treasury yield, as published by the Board of Governors of the Federal Reserve System, for the calendar week preceding[] the date of the judgment. The Director of the Administrative Office of the United States Courts shall distribute notice of that rate and any changes in it to all Federal judges.

226. CARCO and the Government stipulated that, in the event the Government is entitled to any recovery and prejudgment interest, the interest will be calculated using the rate set in OPA, 33 U.S.C. § 2705(b)(4).⁹⁸

227. Because the record does not definitively reflect which entity finally paid for the cleanup and associated costs (i.e., whether it was Frescati or a P&I Club), apart from the Government's reimbursement, the Court will not use the United States Prime Rate or the LIBOR plus 0.5% rate. Instead, the Court finds that Frescati is entitled to an award of prejudgment interest at the United States one-year Treasury Rate specified in 28 U.S.C. § 1961(a). The interest is to be compounded annually pursuant to 28 U.S.C. § 1961(b).⁹⁹ The Government is entitled to prejudgment interest at the rate specified in OPA, 33 U.S.C. § 2705(b)(4), to which the Government and CARCO stipulated.

IV. CONCLUSIONS OF LAW

A. The Court Has Subject Matter Jurisdiction Over this Case

Since this consolidated action is an admiralty case, this Court has jurisdiction pursuant to 28 U.S.C. § 1333(1). In re Frescati, 718 F.3d at 196.

⁹⁸ 33 U.S.C. § 2705(b)(4) provides:

The interest paid under this section shall be calculated at the average of the highest rate for commercial and finance company paper of maturities of 180 days or less obtaining on each of the days included within the period for which interest must be paid to the claimant, as published in the Federal Reserve Bulletin.

⁹⁹ 28 U.S.C. § 1961(b) provides: "Interest shall be computed daily to the date of payment except as provided in section 2516(b) of this title and section 1304(b) of title 31, and shall be compounded annually."

B. Breach of Contractual Warranty

i. CARCO Agreed to a Safe Berth Warranty for the Athos I's Voyage from Puerto Miranda, Venezuela, to Paulsboro, New Jersey.

CARCO and Star Tankers agreed to a safe berth warranty, in which CARCO promised that the Athos I would be directed to a location that “she may safely get (always afloat).” Id. at 197. This safe berth warranty is contained in the voyage charter party between CARCO and Star Tankers. Id. A voyage charter party is a type of maritime contract used between a charterer and a vessel for the shipment of cargo. Id. at 191 (citing Julian Cooke et. al., Voyage Charters § 1.1 (3d ed. 2007)). General contract principles govern maritime contracts, including voyage charter parties. Id. at 198. Therefore, the voyage charter party and its safe berth warranty must be interpreted by its terms and “consistent with the intent of the parties.” Norfolk S. Ry. Co. v. Kirby, 543 U.S. 14, 31 (2004).

The safe berth warranty states as follows:

The vessel . . . shall, with all convenient dispatch, proceed as ordered to Loading Port(s) named . . . or so near thereunto as she may safely get (always afloat) . . . and being so loaded shall forthwith proceed, as ordered on signing Bills of Lading, direct to Discharging Port(s), or so near thereunto as she may safely get (always afloat), and to deliver said cargo.

(Voyage Charter Party, Ex. P-357, Part II, ¶ 1). It further provides:

The vessel shall load and discharge at any safe place or wharf, or alongside vessels or lighters reachable on her arrival, which shall be designated and procured by the Charterer, provided the Vessel can proceed thereto, lie at, and depart therefrom always safely afloat, any lighterage being at the expense, risk and peril of the Charterer. The Charterer shall have the right of shifting the Vessel at ports of loading and/or discharge from one safe berth to another on payment of all towage and pilotage shifting to next berth, charges for running lines on arrival at and leaving that berth, additional agency charges and expense, customs overtime and fees, and any other extra port charges or port expenses incurred by reason of using more than one berth. Time consumed on account of shifting shall count as used laytime except as otherwise provided in Clause 15.

(Id. Part II, ¶ 9).

The purpose of the safe berth warranty is to protect a vessel that agrees to deliver cargo to a charterer's port, "memorializ[ing] the relationship between the contracting entities." In re Frescati, 718 F.3d at 201 (citing Park S.S. Co. v. Cities Serv. Oil Co., 188 F.2d 804, 806 (2d Cir. 1951)). As previously noted, the safe berth warranty triggers two separate protections: "a contractual excuse for a master who elects not to venture into an unsafe port, and protection against damages to the ship incurred in an unsafe port to which the warranty applies." Id. at 197 (citing 2 Schoenbaum, supra § 11-10, at 32-33). The Third Circuit explained that "[i]n this case, only the second benefit of the safe berth warranty is at issue" because the "Athos I was damaged in an allegedly unsafe port." In re Frescati, 718 F.3d at 197.

**ii. Frescati Was a Third-Party Beneficiary
of the Safe Berth Warranty.**

Although the safe berth warranty was contained in the voyage charter party between CARCO and Star Tankers, the Third Circuit held that Frescati was a third-party beneficiary to the agreement. Id. at 197-98. "Before a stranger can avail himself of the exceptional privilege of suing for a breach of agreement, to which he is not a party, he must at least show that it was intended for his direct benefit." Robins Dry Dock & Repair Co. v. Flint, 275 U.S. 303, 307 (1927) (quoting German All. Ins. Co. v. Home Water Supply Co., 226 U.S. 220, 230 (1912)). Because Frescati was not a party to the contract between CARCO and Star Tankers, "there must be a compelling showing that it was nonetheless an intended beneficiary." In re Frescati, 718 F.3d at 197. The Third Circuit discussed the "showing" and concluded that, despite not being a party to the contract, "the Athos I benefits from this warranty, and Frescati, as the vessel's owner, is thus a third-party beneficiary." Id. at 197-98. Because Frescati has standing as a third-party beneficiary to bring a contract claim against CARCO alleging breach of the safe berth warranty, this Court must determine whether either of the parties breached this agreement.

**iii. The Safe Berth Warranty Is an Express Assurance
that the Port Is Deemed Safe for an Arriving Vessel.**

To determine whether the safe berth warranty was breached, the scope of the safe berth warranty must be examined. The Third Circuit explained that “[a] port is deemed safe where ‘the particular chartered vessel can proceed to it, use it, and depart from it without, in the absence of abnormal weather or other occurrences, being exposed to dangers which cannot be avoided by good navigation and seamanship.’” Id. at 200 (citations omitted). The port must be safe for the particular vessel at issue. Id. Furthermore, a safe port “goes beyond ‘the immediate area of the port itself’ to the ‘adjacent areas the vessel must traverse to either enter or leave.’” Id. (quoting Terence Coughlin et al., Time Charters ¶ 10.124 (6th ed. 2008)). Put simply, “a port is unsafe—and in violation of the safe berth warranty—where the named ship cannot reach it without harm (absent abnormal weather conditions or those not avoidable by adequate navigation and seamanship).” Id. at 200.

The Third Circuit found that the “safe berth warranty is an express assurance made without regard to the amount of diligence taken by the charterer.” Id. at 203. In doing so, it adopted the Second Circuit’s view that the charter party obliges the charterer to warrant the safety of berths entered.¹⁰⁰ Id. at 202. As the Second Circuit explained in Park S.S. Co. v. Cities Serv. Oil Co.:

¹⁰⁰ In Orduna S.A. v. Zen-Noh Grain Corp., the Fifth Circuit adopted an alternative view of the safe berth warranty. 913 F.2d 1149 (5th Cir. 1990). It held that a safe berth clause does not impose strict liability upon a voyage charterer, and the charterer is not liable for damages arising from an unsafe berth where the charterer has exercised due diligence in the selection of the berth. Id. In rejecting the Fifth Circuit’s interpretation of the safe berth warranty, the Third Circuit explained that:

The “commercial reality [is] that it is the charterer rather than the owner who is selecting the port or berth,” [Julian Cooke et al., Voyage Charters ¶ 5.126 (3d ed. 2007)], and the charterer is more likely to have at least some familiarity with the port it selected. After all, charterers do not select ports without good reason (and,

The charterer wishes to control the manner and place of discharging its cargo . . . Hence, the charterer bargains for the privilege of selecting the precise place for discharge and the ship surrenders that privilege in return for the charterer's acceptance of the risk of its choice.

188 F.2d at 806. When designating certain ports in a contract, charterers will often know more about the port and its particular dangers than the vessel owner. In re Frescati, 718 F.3d at 202. Furthermore, a charterer is contractually bound to provide "not only a place which he believes to be safe, but a place where the chartered vessel can discharge 'always afloat.'" Paragon Oil Co. v. Republic Tankers, S.A., 310 F.2d 169, 173 (2d Cir. 1962) (quoting Constantine & Pickering S.S. Co. v. West India S.S. Co., 199 F. 964, 967 (S.D.N.Y. 1912)). Because the parties contract in this way, the safe berth warranty works as an express assurance that the port will be safe for the arriving vessel. In re Frescati, 718 F.3d at 203. Therefore, the safe berth warranty between CARCO and Star Tankers was an express assurance from CARCO that its Paulsboro terminal would be safe for the Athos I's arrival. Id. It was not a mere promise that CARCO would perform due diligence in checking that the port was safe for all arriving ships. Id.

After considering the Third Circuit's conclusion that Frescati was a third-party beneficiary to the voyage charter party between CARCO and Star Tankers, and that the safe berth warranty contained in the contract was an express assurance that the Athos I could arrive safely at the Paulsboro facility, this Court must determine whether the uncharted anchor, the

in the case before us, CARCO was directly on the scene, *as it had selected its own berth*). . . . To any extent a charterer, however distant, bargains to send a ship to a particular port and warrants that it shall be safe there, we see no basis to upset this contractual arrangement.

In re Frescati, 718 F.3d at 202.

existence of which was unknown to the parties in this case, rendered CARCO's port unsafe for a ship of the Athos I's agreed-upon dimensions and draft.¹⁰¹

iv. CARCO Warranted a Safe Berth with the Understanding that the Athos I Would Be Drawing as Much as 37 Feet of Water Upon Its Arrival.

The Third Circuit held that this Court must determine whether the uncharted anchor rendered the Paulsboro port unsafe for a ship of the Athos I's agreed-upon dimensions and draft. In re Frescati, 718 F.3d at 203. The Court already has found, however, that the maximum draft for the Athos I was 37 feet, as designated by CARCO in its voyage instructions to Frescati. (Voyage Instructions, Ex. P-360.)

As noted in the Findings of Fact, this Court agrees with the Third Circuit that, from the record, "CARCO warranted a safe berth with the understanding that the Athos I would be drawing as much as 37 feet of water upon its arrival." In re Frescati, 718 F.3d at 204. The voyage instructions indicated that the Athos I would be filled with a quantity of crude oil "always . . . consistent with a 37 [foot] or less [fresh water] sailing draft at loadport."¹⁰² (Voyage Instructions, Ex. P-360.) Therefore, the maximum permissible arrival draft for the Athos I was 37 feet.

¹⁰¹ The dimensions of the Athos I as a Panamax-size ship were well-known to CARCO when the Athos I was chartered.

¹⁰² As noted previously, Captain Markoutsis, the Captain of the Athos I, explained that the Athos I was loaded to a maximum draft of 36 feet, 6 inches. (Markoutsis Tr., 198:18-199:3; 200:7-201:13, Oct. 13, 2010.) During the last phase of the voyage, he confirmed the draft was less than 37 feet with Captain Teal. (Teal Tr., 51:12-52:18; 135:23-136:2; 160:11-15, Mar. 16, 2015.) Additionally, Captain Rankine, who was the Port Captain at CARCO's Paulsboro Terminal from 2002 to 2005, testified that the Athos I reported a draft consistent with 37 feet of maximum permissible draft at loadport. (Rankine Tr., 191:15-24, May 27, 2015.)

**v. The Athos I Complied with the Draft Limitations
of 37 Feet or Less.**

CARCO argues that the Athos I had a draft that was more than the allowable 37 feet, due to problems with the ship and poor navigation. However, the Court disagrees. From the record, the Athos I had a draft of 36 feet, 7 inches during its approach to the Paulsboro facility. The Athos I was loaded to a draft of 36 feet, 6 inches in Puerto Miranda. (Markoutsis Tr., 198:18-199:3; 200:7-201:13, Oct. 13, 2010.) By the time the ship arrived in the Delaware Bay, the mean draft was about 36 feet, 4 inches. (Bowman Tr., 7:21-8:22, Mar. 10, 2015.) Burning fuel and other factors caused this decrease in the ship's draft toward the aft of the ship. (Bowman Tr., 9:7-12, Mar. 10, 2015.) This resulted in the ship being trimmed by the bow. (Bowman Tr., 9:7-12, Mar. 10, 2015.) To bring the ship back to an even keel, the Athos I took on approximately 510 metric tons of ballast. (Bowman Tr., 10:1-7, 12:25, Mar. 10, 2015.)

CARCO has alleged that problems with the Athos I's ballast system caused the vessel to take on more ballast than anticipated, increasing the draft beyond 37 feet. However, the Court has found that the Athos I did not take on extra ballast. Mr. Bowman, Frescati's expert witness in naval architecture, testified that he "could not find any evidence of unreported ballast on the vessel." (Bowman Tr., 61:8-16, Mar. 10, 2015.) Mr. Hall, the maritime surveyor who inspected the Athos I after the casualty, explained that the crew properly sounded the ballast tanks. (Hall Tr., 137:19-24; 152:12-13, Mar. 4, 2015.) Most significantly, on the morning after the casualty, Mr. Hall entered the Number Six Port ballast tank, which is adjacent to Number Seven Port ballast tank, and found that it was dry. (Hall Tr., 147:4-25, 152:9-25, Mar. 4, 2015.) He testified that "[t]here were no indications of ballast . . . or recent ballast being present in the tank." (Hall Tr., 152:12-13, Mar. 4, 2015.) The Athos I did not take on extra ballast before or on the day of the spill. (Hall Tr., 137:19-24, 152:9-20, 156:5-23, 178:9-16, Mar. 4, 2015.)

Once the Athos I reached the Paulsboro terminal, tugboats had to push the vessel into the docking area to reach the berth. CARCO argued that, when the Athos I was being pushed by tugboats towards the berth, this force caused the vessel to heel¹⁰³ or tilt to the port side, increasing the draft to more than 37 feet. However, any heel caused by the tugboats was de minimis, and would not have increased the draft beyond 37 feet. (Bowman Tr., 179:7-23, May 28, 2015.)

From the record, the Athos I had a draft of 36 feet, 7 inches during its approach to the Paulsboro facility. For this reason, Frescati complied with CARCO's maximum allowable draft of 37 feet.

vi. Exceptions to the Safe Berth Warranty for Poor Navigation and Seamanship Do Not Apply.

The Third Circuit explained that the fact that “the Athos I was injured by the anchor does not automatically indicate the warranty was breached.” In re Frescati, 718 F.3d at 203. Although CARCO had an obligation to provide a safe port for the Athos I with a maximum draft of 37 feet, there are two exceptions that negate the safe berth warranty: (1) the presence of abnormal weather conditions, or (2) the exposure to dangers avoidable by good navigation and seamanship. Id. at 200. On November 26, 2004, as the Athos I approached the Paulsboro terminal, weather conditions were normal. (Teal Tr., 71:4-21, Mar. 16, 2015.) Therefore, the first exception does not apply here. The Court must then determine whether the Athos I crew exposed the ship to dangers avoidable by good navigation and seamanship.

Frescati argues that CARCO has the burden of proving poor navigation and seamanship because it was raised as an affirmative defense. On the other hand, CARCO asserts that this is not an affirmative defense, and that Frescati has the burden of proving that there was no poor

¹⁰³ “Heel” is defined as the “inclination of a ship to one side.” 8 Benedict on Admiralty Nautical Glossary (7th ed. 2015).

navigation and seamanship. Regardless of which party has the burden of proving poor navigation and seamanship, or its absence, Frescati has met its burden of proof by demonstrating that any problem relating to seamanship and navigation of the vessel did not expose the Athos I to dangers that caused or contributed to the allision.¹⁰⁴

CARCO argues that the Athos I crew and pilots engaged in poor navigation and seamanship sufficient to void the safe berth warranty. First, CARCO alleges that the Athos I was attempting to dock at an inappropriate time. The Court disagrees. The Third Circuit has already stated that it found “no indication in the record that the Athos I was attempting to dock at an inappropriate time.” *In re Frescati*, 718 F.3d at 204 n.22. This Court finds credible the testimony of both Captain Bethel and Captain Teal, given their vast experience piloting vessels up the Delaware River, that the Athos I was not docking at an inappropriate time. Captain Bethel is an experienced docking pilot who observed a flood current and rising tide before beginning the docking maneuver. (Bethel Tr., 47:22-48:10, Mar. 17, 2015.) Captain Teal likewise testified that the tide was rising when the Athos I reached the docking site in the channel. (Teal Tr., 79:13-20, 87:1-7, Mar. 16, 2015.) The docking attempt was made within the docking window set by the Docking Pilots Association. Moreover, neither Captain Bethel nor Captain Teal experienced any problems with squat, which could cause insufficient underkeel clearance. (Teal Tr., 61:12-62:10, Mar. 16, 2015.)

Second, CARCO alleges that the Athos I crew and pilots engaged in such poor navigation and seamanship that the ship was in an unseaworthy condition that it negated the safe berth

¹⁰⁴ To expect an oil tanker of the Athos I’s age and size to operate without any problems, at all times, is unrealistic. The critical point is, however, whether a problem exposed the ship to dangers that could have been avoided by good navigation and seamanship. Here, the Court finds that the crew and pilots did not expose the Athos I to the danger that it would strike an unknown object through poor navigation and seamanship. In fact, there was no poor navigation and seamanship that caused or contributed to the cause of the allision.

warranty. Historically, a seaworthy vessel is one that is “so tight, staunch, and strong” as to meet the perils of the sea. Dupont De Nemours & Co. v. Vance, 60 U.S. 162, 163 (1856). At common law, the test for seaworthiness is whether the vessel is reasonably fit to carry the cargo for its intended voyage. Mitchell v. Trawler Racer, Inc., 362 U.S. 539, 550 (1960). In Mitchell, the Supreme Court explained that a vessel owner’s duty is

only to furnish a vessel and appurtenances reasonably fit for their intended use. The standard is not perfection, but reasonable fitness; not a ship that will weather every conceivable storm or withstand every imaginable peril of the sea, but a vessel reasonably suitable for her intended service.

362 U.S. at 550. The vessel must be fit for carrying the particular cargo the owner has contracted to transport. PPG Indus., Inc. v. Ashland Oil Co.-Thomas Petroleum Transit Div., 592 F.2d 138, 146 (3d Cir. 1978). In this context, seaworthiness does not mean that the vessel is in perfect condition. See Spencer Kellogg & Sons v. Buckeye S.S. Co., 70 F.2d 146, 148 (6th Cir. 1934) (noting that “[s]eaworthiness does not comprehend the best form of construction . . . or perfection in condition”). Rather, the “reasonably fit” standard is relative, and covers such matters as the type of vessel, the character of the voyage, the reasonably expectable weather patterns, and the anticipated navigational conditions. PPG Indus., Inc., 592 F.2d at 146.

In addition to the common law “reasonably fit” standard, most charters include a warranty with language requiring the owner to use due diligence to make the vessel seaworthy. 8 Benedict on Admiralty ch. XVIII, § 18.07(B) (7th ed. 2015). Due diligence consists of whatever a reasonably competent vessel owner would do under the circumstances. The Bill, 47 F. Supp. 969, 976 (D. Md. 1942), aff’d, 145 F.2d 470 (4th Cir. 1944). For example, knowledge of abnormal conditions and a failure to investigate their cause constitutes a lack of due diligence. See Hasbro Indus., Inc. v. M/S St. Constantine, 705 F.2d 339 (9th Cir. 1983), cert. denied, 464 U.S. 1013 (1983) (explaining that a ship owner, which knew that a pipe support bracket should

have been attached to lube oil pipe, failed to exercise due diligence when it neglected to investigate the cause or effect of engine vibration that resulted in a dangerous fire aboard the vessel). Additionally, a vessel owner may not avoid the obligation to exercise due diligence by delegating that duty to another. 2A Benedict on Admiralty ch. VIII, § 84, at 8-4 (7th ed. 2015). Both the reasonably fit and due diligence standards turn on reasonableness, and do not require absolute perfection.

Most significantly, a determination that the ship is unseaworthy is relevant only if it is related to the loss of or damage to cargo. 2A Benedict on Admiralty, supra § 87, at 8-8 (citing The Malcolm Baxter, Jr., 277 U.S. 323 (1928)). There must be a causal connection between the loss sustained and the unseaworthy condition discovered. Temple Bar, 45 F. Supp. 608, 616 (D. Md. 1942), aff'd, 137 F.2d 293 (4th Cir. 1943). "If a ship is found to be unseaworthy and due diligence has not been exercised to prevent the unseaworthy condition a ship[]owner would not be liable unless there is a causal connection between the loss and the unseaworthy condition." Dir. Gen. of India Supply Mission for & on Behalf of President of Union of India v. Steamship Janet Quinn, 335 F. Supp. 1329, 1335 (S.D.N.Y. 1971). Under either the reasonably fit or due diligence standard, the party asserting that the vessel was unseaworthy would have to show that there were problems with the ship that proximately caused the casualty.

Under both the reasonably fit and due diligence standard, the Athos I was seaworthy. Even if the Athos I had problems endemic to an aging ship, any purported issues with the vessel did not proximately cause or contribute to the cause of the oil spill.

Here, as noted, CARCO asserts that the Athos I was unseaworthy, and that this unseaworthiness caused the casualty, thereby negating the safe berth warranty. In particular, CARCO alleges that the following problems made the Athos I unseaworthy:

- Frescati failed to maintain the ballast system, which rendered the vessel unseaworthy. (Doc. No. 867 at 192.)
- Frescati failed to maintain a proper safety management system in violation of Safety of Life at Sea (“SOLAS”) conventions, the International Safety Management (“ISM”) code, and various U.S. regulations, which rendered the vessel unseaworthy.¹⁰⁵ (Id. at 199.)
- Frescati failed to man the Athos I with a well-trained and competent crew and monitor their performance, which rendered the vessel unseaworthy. (Id. at 201.)

CARCO argues that Frescati failed to maintain the ballast system, which rendered the Athos I unseaworthy. (Id. at 192.) In particular, CARCO alleges that the deteriorated ballast system allowed the ballast lines to open and close on their own, meaning that additional ballast water could be unintentionally added to the ballast tanks. (Id. at 193.) However, there is no credible evidence that the Athos I took on any extra ballast beyond what the crew had anticipated.

A few months prior to the oil spill, the Athos I was dry docked in Dalian, China for inspection and maintenance. Extensive repairs were completed at this time, including repairs to the vessel’s ballast lines. Moreover, the Athos I was able to take on the 510 metric tons of ballast to bring the ship to an even keel near the entrance to the Delaware Bay. (Bowman Tr., 9:7-10:7, 12:25, 13:13-22, Mar. 10, 2015.) Had extra ballast been added during the voyage from that point to the Paulsboro terminal because the ballast system was not maintained, it would not have occurred symmetrically throughout the vessel, and the Athos I would have been listing to one side before and upon its arrival in the channel near Paulsboro. It was not listing. (Teal Tr., 85:18-22, Mar. 16, 2015; Bethel Tr., 51:2-3, 52:16, Mar. 17, 2015.) Furthermore, on the

¹⁰⁵ “The SOLAS Conventions and protocols constitute a comprehensive code relating to the construction of ships, their machinery and equipment, electrical installations, life saving appliances, radio telegraphy, and other matters.” 2 Thomas J. Schoenbaum, Admiralty & Maritime Law § 18-1 at 275 (5th ed. 2012).

morning after the oil spill, Mr. Hall inspected the ballast tanks and found that they were dry. (Hall Tr., 147:4-6, 150:7-152:20, Mar. 4, 2015.) It was virtually impossible for the ballast tanks to be completely dry had extra, unanticipated ballast leaked aboard prior to the allision. (Hall Tr., 178:9-16, Mar. 4, 2015; 75:2-21, Mar. 6, 2015.) Finally, there is no credible evidence that ballast increased the ship's draft beyond 37 feet. Therefore, any arguably compromised ballast lines did not proximately contribute to or cause the oil spill. In any event, the Court finds that any defective condition in the ballast system did not result in the addition of ballast to the extent that it would cause or contribute to the cause of the allision.

Next, CARCO alleges that Frescati failed to maintain a proper safety management system in violation of the SOLAS standards, the ISM code, and other U.S. regulations, which rendered the vessel unseaworthy. (Doc. No. 867 at 199.) However, this argument also is unpersuasive. As the manager of the Athos I, Tsakos ensured that ships under its management implemented both mandatory and voluntary tanker safety systems and assessment programs. (Hajimichael Tr., 21:3-15, 44:8-15, Oct. 19, 2010.) Tsakos ensured that the Athos I was certified under the International Safety Management ("ISM") code. It had established a comprehensive safety management system, which regulated every aspect of tanker management. Tsakos' quality and safety management system included a planned maintenance system that covered all mechanical components of the ship. (Ex. P-332.) Tsakos inspectors regularly visited ships under its management, including the Athos I. Even if violations were uncovered or these regulations were not specifically followed, these purported violations did not proximately cause or contribute to the casualty.

CARCO also alleges that Frescati failed to man the Athos I with a well-trained and competent crew and monitor their performance, which rendered the vessel unseaworthy. (Doc.

No. 867 at 201.) Tsakos retained full management of the Athos I during the voyage in question and ensured its crew members were properly licensed and trained in accordance with the Convention on Standards for Training Competency and Watch Keeping. While the Athos I was dry docked at Dalian, Tsakos trained the ship's crew on its procedures and ensured that the crewmembers would continue to receive training while underway. (Athos I Inspections & Audits, Ex. P-1310.) The Athos I's master and navigational crew were properly licensed and experienced. (Ex. P-286; Ex. P-289; Ex. P-295; Ex. P-298; Ex. P-301.) Only a few months before the casualty, Tsakos' quality and safety department conducted an internal audit of the Athos I, which ensured that the crew was complying with Tsakos' safety management system. After the casualty, Mr. Hall even watched the Athos I crew properly perform tasks, such as sounding the ballast tanks correctly. (Hall Tr., 136:9-137:22, Mar. 4, 2015; 73:24-74:4, Mar. 6, 2015.) For these reasons, this Court finds that Frescati maintained a well-trained and competent crew on the Athos I.

In sum, the Athos I was seaworthy. It was reasonably fit to carry the cargo for its intended voyage. The Athos I was a Panamax-size vessel that could transport the oil cargo. There were no weather patterns or navigational conditions that rendered the ship unfit. There was nothing about the character of the voyage that would alert anyone that a potential hazard to navigation in the approach to the Paulsboro terminal existed. The Athos I's crew exercised due diligence in ensuring the vessel's seaworthy condition.

CARCO's reasons why the Athos I was unseaworthy are not credible, and they did not proximately contribute to or cause the casualty. Because the Athos I was in a seaworthy condition and not exposed to dangers that were avoidable by good navigation and seamanship,

the safe berth warranty was not negated. The safe berth warranty applied to the entirety of the Athos I's voyage, including its approach to CARCO's Paulsboro berth.

**vii. CARCO Breached the Safe Berth Warranty by
Failing to Provide Safe Passage for the Athos I,
Which Was Drawing 36 Feet, 7 Inches, Upon Its Arrival.**

The Third Circuit explained that “[i]f it is found that the Athos I was drawing 37 feet or less and absent a determination of bad navigation or seamanship, that finding would indicate that the warranty had been breached because the ship sustained damage.” In re Frescati, 718 F.3d at 204-05. It further explained that,

What, if anything, under the water may have caused that margin to be diminished is therefore immaterial. It could have been the remnants of a shipwreck, a range of rocks, a jutting reef, or a shoal. In this case, it happened to be an abandoned anchor that protruded into the Athos I's hull. And by its safe berth warranty, CARCO assumes liability for that damage.

Id. at 205. The Athos I had a draft of 36 feet, 7 inches during its approach to the Paulsboro facility. There was no proof of poor navigation or seamanship that exposed the Athos I to dangers that contributed to the Athos I's allision with the anchor. The Athos I crew and pilots engaged in good navigation and seamanship, and such navigation and seamanship could not have avoided the allision with the unknown anchor protruding more than five feet above the riverbed. Therefore, this Court concludes that CARCO breached the safe berth warranty, and is liable for this contractual breach to Frescati.

C. Negligence

**i. CARCO Was Negligent in Maintaining
the Approach to Its Berth.**

This Court has found that CARCO breached its safe berth warranty. For this reason, Frescati is entitled to recover damages on the breach of warranty claim. According to the Third Circuit Opinion, if this finding is made, rendering a decision on Frescati's negligence claim

becomes unnecessary. In re Frescati, 718 F.3d at 190, 215. But the parties agreed in advance that this Court should rule on the negligence claim, and they presented substantial evidence on this issue. Thus, conclusions of law on the negligence claim will be made as required by Rule 52(a) of the Federal Rules of Civil Procedure.

The Court of Appeals has set forth the elements of negligence in admiralty law:

Negligence in admiralty law is essentially coextensive with its common law counterpart, requiring: (1) “[t]he existence of a duty required by law which obliges the person to conform to a certain standard of conduct”; (2) “[a] breach of that duty by engaging in conduct that falls below the applicable standard or norm”; (3) a resulting loss or injury to the plaintiff; and (4) “[a] reasonably close causal connection between the offending conduct and the resulting injury.”

In re Frescati, 718 F.3d at 207 (quoting 1 Schoenbaum, supra, § 5-2, at 252). For CARCO to be found liable for negligent conduct in regard to the approach to its terminal, each of these elements must be proven by Frescati by a preponderance of the evidence. 1 Schoenbaum, supra, § 5-2, at 252 n.18. The Court will address each element in turn.

1. The Third Circuit Found that CARCO Had a Duty to Maintain a Safe Approach.

The Third Circuit held that CARCO had “a duty to maintain a safe approach to its terminal.” In re Frescati, 718 F.3d at 207. Since the Athos I was in its final approach to the terminal when it was damaged, CARCO had a duty to Frescati to provide the Athos I with a safe approach. Id. at 211.

Over 100 years ago, the United States Supreme Court described the duty a wharfinger owes to ships invited to its berth. As set forth in Smith v. Burnett, wharfingers owe a duty:

towards vessels which they invite to use their berthage for the purpose of loading from or unloading upon their wharf. They are . . . bound to use reasonable diligence in ascertaining, whether the berths themselves, and the approaches to them, are in an ordinary condition of safety for vessels coming to and lying at the wharf. If the approach to the berth is impeded by a visual obstruction, they must

either remove it, or if that cannot be done, they must give due notice of it to ships coming there to use their quay.

173 U.S. 430, 436 (1899). “[T]here is a duty on the part of the owner of the wharf to those whom he invites to come alongside that wharf, and a duty in which the condition of the bed of the river adjoining that wharf may be involved.” Id. at 436. “It is well settled that a general wharfinger is not an insurer but that he must use reasonable diligence in providing a safe berth; and that that requires the taking of reasonable precautions to remove under water obstructions that might otherwise endanger the vessels moored to his pier.” Berwind-White Coal Mining Co. v. City of New York, 135 F.2d 443, 445 (2d Cir. 1943). Undoubtedly, CARCO had a duty to Frescati, whom it invited to its berth, to ascertain whether the approach was in an ordinary condition of safety.

More specifically, “[t]his duty includes the duty to ascertain the existence of underwater obstacles and to remove or adequately warn of such obstacles.” Sonat Marine, Inc. v. Belcher Oil Co., 629 F. Supp. 1319, 1326 (D.N.J. 1985), aff’d, 787 F.2d 583 (3d Cir. 1986) (internal citations omitted). Thus, “a visiting ship may only expect that the owner of a wharf has afforded it a safe approach.” In re Frescati, 718 F.3d at 207 (citing In re Nautilus Motor Tanker Co., 85 F.3d 105, 116 (3d Cir. 1996)). When a ship is invited “to dock at a particular port, ‘a vessel should be able to enter, use and exit a wharfinger’s dock facilities without being exposed to dangers that cannot be avoided by reasonably prudent navigation and seamanship.’” Id. (quoting In re Nautilus, 85 F.3d at 116). This “represents to the master of a vessel who is induced to bring his vessel to its wharf that the berth and immediate access to it are reasonably safe for the vessel.” Id. at 210 (quoting The Cornell No. 20, 8 F. Supp. 431, 433 (S.D.N.Y. 1934)).

The Third Circuit held, “[w]hat is an approach should be given its same plain meaning in the maritime context; when a ship transitions from its general voyage to a final, direct path to its

destination, it is on an approach.” *Id.* at 209. Thus, “in most instances the approach will begin where the ship makes its last significant turn from the channel toward its appointed destination following the usual path of ships docking at that terminal.” *Id.* The Court of Appeals concluded that the Athos I “had ceased navigating generally and was within the final phase of its travel, namely that it was rotated sideways and . . . assisted by tugs.” *Id.* at 210.

Accordingly, the Athos I was within the approach to CARCO’s terminal when the accident occurred in the Anchorage, and CARCO “had a duty to exercise reasonable diligence in providing Athos I with a safe approach.” *Id.* at 211. Though the Third Circuit found that CARCO had a duty to the Athos I to provide a safe approach, this Court has been asked to determine whether or not “CARCO satisf[ied] that duty by exercising the standard of care required of a reasonable wharfinger under the circumstances.” *Id.* To answer that question and determine whether CARCO fulfilled its duty, this Court must determine the standard of care applicable here under the circumstances.

2. The Standard of Care Required CARCO to Scan the Approach Periodically Using Side-Scan Sonar and to Remove or Warn Incoming Ships of Hazards to Navigation.

As noted, the Third Circuit left to this Court on remand to decide what standard of care a reasonably prudent wharfinger in CARCO’s circumstances should have followed to fulfill its duty of care as a wharfinger. *Id.* at 211. Though the standard of care required of CARCO to fulfill its duty is a question of law, “factual issues predominate here as they do in most negligence litigation.” *Id.*

“Negligence exists where there was a ‘fail[ure] to exercise that caution and diligence which the circumstances demand, and which prudent men ordinarily exercise.’” *Id.* (quoting Grand Trunk R. R. v. Richardson, 91 U.S. 454, 469 (1875)). The same is true in the admiralty

context, demanding “reasonable care under the particular circumstances.” Id. (quoting 1 Schoenbaum, supra, § 5-2, at 253). However, “the degree of care which the law requires in order to guard against injury to others varies greatly according to the circumstances of the case.” Id. (quoting Richardson, 91 U.S. at 469-70). The Court of Appeals explained, “[i]n admiralty, the particular duty required under any given circumstance can be gleaned from statute, custom, or ‘the demands of reasonableness and prudence.’” Id. (quoting 1 Schoenbaum, supra, § 5-2, at 253). The Third Circuit previously noted that no statute set the standard of care. Id. at 211 n.31. Therefore, the Court must decide whether custom or the demands of reasonableness and prudence set the standard.

a. Custom Does Not Establish the Standard of Care.

The Third Circuit noted that industry custom may be defined in this case by the actions of similarly situated terminals. In re Frescati, 718 F.3d at 212 n.31. For an industry custom to be binding, “[a] usage or custom . . . must be so uniform, long-established, and generally acquiesced in by those pursuing the particular calling as to induce the belief that the parties contracted in reliance upon it. It must be proved by instances of actual practice—a succession of individual facts” Parkway Baking Co. v. Freihofer Baking Co., 255 F.2d 641, 647 (3d Cir. 1958). On the facts before the Third Circuit, the panel was “unable to make any meaningful assessment of industry custom.” In re Frescati, 718 F.3d at 212 n.31.

CARCO asserts that the “absence of custom and statutory duty is relevant to establish the required standard of care.” (Doc. No. 866 at 118; Doc. No. 867 at 264.) CARCO contends that, because no statute, regulation, custom, or practice required private terminals to survey for hazards to navigation outside of their permitted berthing area, it did not have a duty to survey the Anchorage. (Doc. No. 866 at 119.) CARCO relies on the testimony of Richard Long and

William Rankine in support of this assertion. Marine Consultant and Engineer Richard Long testified that S.T. Hudson worked on thirty-one facilities on the Delaware River, which included the majority of terminals on the Delaware River.¹⁰⁶ (Long Tr., 20:1-5, 141:11-142:23, May 26, 2015.) He testified that he only performed depth surveys for these facilities, and that he never searched the approaches for objects dangerous to navigation. (Long Tr., 13:23-14:4, 25:21-26:2, May 26, 2015.) Additionally, Captain Rankine testified that, based on his conversations with other terminal representatives, no other terminals were surveying the approaches to their berths.¹⁰⁷ (Rankine Tr., 106:17-20, 108:8-16, May 28, 2015.)

Initially, the Court notes that the thirty-one facilities surveyed by S.T. Hudson cover only a portion of the terminals on the Delaware, as there could be over forty marine terminals on the Delaware River. (Long Tr., 141:11-142:23, May 26, 2015.) Furthermore, Captain Rankine's testimony regarding his knowledge of what other terminal operators were doing or not doing was based on hearsay. CARCO did not present testimony from any other terminal owner to establish a custom.

But custom is only one consideration in determining the duty of care. As the Third Circuit noted, custom "is only evidence of a standard of care[,] and violation of custom or adherence to it does not necessarily constitute negligence or lack of negligence." In re Frescati, 718 F.3d at 212 n.31 (alteration in original) (quoting In re J.E. Brenneman Co., 322 F.2d 846,

¹⁰⁶ Oil and liquid product facilities hired S.T. Hudson Engineers, a marine consulting and engineering firm, to perform hydrographic surveys and obtain dredging permits for the facilities. (Long Tr., 13:7-10, May 26, 2015.) Mr. Long personally began conducting surveys for the Paulsboro facility in 1975, when Seaview Petroleum rather than CARCO owned the terminal. (Long Tr., 26:9-27:11, May 26, 2015.)

¹⁰⁷ As noted already, from January 2002 to January 2005, William Rankine was the Port Captain at CARCO's Paulsboro marine terminal. (Rankine Tr., 97:11-14; 98:4-7, May 27, 2015.)

855 (3d Cir. 1963)). “A custom may be taken into account to determine the reasonableness of conduct in certain circumstances, but it is not conclusive.” 1 Schoenbaum, supra, § 5-2, at 253 n.19 (citing Tittle v. Aldacosta, 544 F.2d 752 (5th Cir. 1977); Complaint of Paducah Towing Co., 692 F.2d 412 (6th Cir. 1982)). The court in Complaint of Paducah Towing Co. highlighted this point in more detail:

The accepted practice in an industry, however, is not a conclusive measure of reasonableness. A generally accepted industrial practice may still be negligence. “An industry’s customary practices are not necessarily determinative of reasonableness.” Tucker v. Calmar Steamship Corp., 457 F.2d 440, 446 (4th Cir. 1972). See In re M & J Tracy, Inc., 422 F.2d 929, 932 (3rd Cir. 1969) (“the fact that a process seems to have been one generally used . . . does not sanctify it”); Venable v. A/S Det. Forenede Dampskeibsselskab, 399 F.2d 347, 353 (4th Cir. 1968). Even if vessels regularly moor with a single line close upstream from a dam without an engine idling so that an accident is unavoidable should the vessel become unmoored, we believe that such conduct, especially by a tie-off tow in the self-help program, is unreasonable. A generally accepted industrial practice will not shield a vessel from liability where the risks of injury are so substantial and foreseeable. See Note 17-18 and accompanying text, supra.

692 F.2d 412, 426 (6th Cir. 1982).

Here, industry custom does not define what is required of a reasonably prudent wharfinger under the circumstances. The paucity of evidence on custom failed to establish that private terminals did not have a duty to search for obstructions outside their berthing area. Moreover, a failure to meet a duty of care cannot be excused because it is customary in the industry. As will be explained below, “the demands of reasonableness and prudence” required more from CARCO in this case and set the standard of care.

b. A Standard of Care Based on the “Demands of Reasonableness and Prudence” Required CARCO to Periodically Scan the Approach for Hazards to Navigation Using Side-Scan Sonar and to Remove the Hazards or Warn Incoming Ships of Them.

The third basis for a standard of care identified by the Third Circuit is “the demands of reasonableness and prudence.” In re Frescati, 718 F.3d at 211 (quoting 1 Schoenbaum, supra, § 5-2, at 253). The Court in In re J.E. Brenneman Co. stated, “[i]f admiralty law does not supply the standard, that is, if the situation is not governed by statute, . . . or maritime custom, then this Court must judge the conduct . . . according to the principles of tort law, especially the principles of negligence.” 782 F. Supp. 1021, 1027 (E.D. Pa. 1992). In Burnett, the Supreme Court held that a wharfinger is:

bound to use reasonable diligence in ascertaining, whether the berths themselves, and the approaches to them, are in an ordinary condition of safety for vessels coming to and lying at the wharf. If the approach to the berth is impeded by an unusual obstruction, they must either remove it, or if that cannot be done, they must give due notice of it to ships coming there to use their quay.

173 U.S. at 436 (quotation omitted).

One recognized method for determining reasonableness and prudence, or to put it another way, “reasonable diligence in ascertaining, whether the berths themselves, and the approaches to them, are in an ordinary condition of safety for vessels coming to and lying at the wharf,” id., is contained in Judge Learned Hand’s famous risk utility formula, which originated in the admiralty case United States v. Carroll Towing Co., 159 F.2d 169 (2d Cir. 1947). Using that test, the standard of care to prevent harm can be analyzed using three variables: (1) the probability of harm (P); (2) the gravity of the harm (L); and (3) the burden of precautions (B). Carroll Towing Co., 159 F.2d at 173. Using Judge Hand’s formula, liability depends on whether $B < PL$, that is, whether the burden of taking precautions is less than the probability of harm multiplied by the

gravity of harm. *Id.* The Third Circuit applied this formula in Guardian Life Insurance Co. of America v. Weisman, 223 F.3d 229, 234 (3d Cir. 2000). There, the Court stated:

Reasonable care . . . has long been evaluated in terms of a very conventional piece of economics: the cost of a risk-averting procedure should not exceed its expected benefit, where the measure's expected benefit in this context is calculated by multiplying the harm sought to be averted by the amount the measure reduces the likelihood of the harm occurring.

Id. (citing Carroll Towing Co., 159 F.2d at 173). Indeed, “the formula is a valuable aid to clear thinking about the factors that are relevant to a judgment of negligence. . . . It gives federal district courts in maritime cases, . . . a useful framework . . . for preparing Rule 52(a) findings.” U.S. Fidelity & Guar. Co. v. Jadranska Slobodna Plovidba, 683 F.2d 1022, 1026 (7th Cir. 1982); see also Brotherhood Shipping Co., Ltd. v. St. Paul Fire & Marine Ins. Co., 985 F.2d 323, 327 (7th Cir. 1993) (applying Judge Learned Hand’s formula to an admiralty case involving a city’s negligence for harm to a ship in a storm).

Here, the probability of harm multiplied by the gravity of the harm exceeds the burden of the precautions taken by CARCO. First, the probability of harm to ships was high and was made higher in 1999 when CARCO convinced the Docking Pilots Association (“DPA”) to open the berthing window four hours earlier. In 1999, at CARCO’s request, the DPA established a docking window for the Paulsboro facility to maximize the number of vessels that could dock at CARCO’s berth. (Quillen Tr., 11:10-12:9, Sept. 2, 2010; DPA Memo, Ex. P-50; Ex. P-52.) This window allowed vessels with a maximum draft of 37 feet, 6 inches to dock at CARCO’s berth “from the beginning of [the] flood current until the time of one (1) hour after high water, Billingsport Range,” and that “[a]ll vessels shall be docked head to the current.” (Ex. P-52; Quillen Tr., 11:10-26:3, Sept. 2, 2010.) This change reduced the underkeel clearance of ships drawing 37 feet 6 inches or less by four feet. (Rankine Tr., 181:16-23, May 27, 2015.) Further,

this change in the docking window increased the foreseeable risk and the probability of harm to ships heading to CARCO's berth.

Next, the gravity of harm if a ship struck an object and an accident occurred was high. From 1997 to 2004, approximately 673 vessels anchored in Federal Anchorage Number Nine. (Rankine Tr., 62:14-64:3, May 27, 2015.) From 2001 to 2004, 241 of those vessels proceeded to CARCO's Paulsboro berth. (Rankine Tr., 64:8-71:4, May 27, 2015; Ex. D-1859). These vessels carried crude oil or other toxic liquids. (Rankine Tr., 162:1-7, 162:14-21, May 27, 2015). Some of these ships, like the Athos I, were single-hulled ships. (Rankine Tr., 146:11-21, May 27, 2015.) The potential environmental and financial loss from an oil spill was considerable.

Finally, the burden of taking precautions to prevent the harm was less than the other two factors considered together or separately. Given the volume of ships entering the Anchorage, and even when only considering the number that went to CARCO's Paulsboro berth, the burden of surveying with periodic side-scan sonar to determine if there were hazards to navigation was low. More specifically, the cost of a periodic inspection for obstructions and hazards would be small in comparison to the gravity and probability of harm. (Doc. No. 859-1 ¶ 75.) Mr. Fish, an underwater search and surveyor, estimated that in 2004, he would have charged "somewhere between \$8,000 to \$11,000" to survey CARCO's approach area using side-scan sonar to search for obstructions. (Fish Tr., 210:20-21, Mar. 19, 2015.) Further, Mr. Capone, a hydrographer, estimated the cost of performing a side-scan sonar survey of CARCO's approach to be between \$7,500 to \$11,000. (Capone Tr., 200:19-24, Mar. 18, 2015.) In fact, side-scan sonar detected the anchor after the allision that holed the Athos I. (Fish Tr., 140:20-24, Mar. 19, 2015.) The cost of

side-scan sonar was less than a single day's demurrage charge for a ship like Athos I.¹⁰⁸ (Doc. No. 859-1 ¶ 80.) Therefore, the burden of taking the precaution of surveying with side-scan sonar would have been nominal in comparison to the gravity and the probability of harm.

After considering the specific facts of this case and the demands of reasonableness and prudence, the Court is able to make a finding on the standard of care applicable here. The standard of care is that a reasonably prudent terminal operator should periodically scan the approach to its dock for hazards to navigation as long as ships are being invited there. In this case, the standard would require that side-scan sonar be used to search the approach for obstructions that are potential hazards to navigation.¹⁰⁹ If an obstruction is located, a terminal operator is then required to remove it, and if the terminal operator cannot remove it, notice of the hazard must be given to incoming ships by marking it as a hazard and/or warning ships of its presence.

Here, on average, about 84 ships entered Federal Anchorage Number Nine per year, and about 60 ships docked yearly at CARCO's terminal. Despite this traffic, CARCO did not search at all for any potential hazards.

¹⁰⁸ As noted, demurrage is an agreed upon rate that is charged to a charterer when the ship is delayed during the charter for whatever reason through no fault of the ship. (Rankine Tr., 179:14-18, May 27, 2015.)

¹⁰⁹ Although based on the facts of this case side-scan sonar is the method chosen to search for obstructions under the standard of care, this is not the only method available in the industry to search for hazardous debris. Other methods include, for example, running wire drags or even sending hard-hat divers down to walk the river bottom. Since the standard of care involves factual issues, the methods may vary when the conditions in the approach to each terminal are examined. As the Third Circuit noted, “[o]f course, ‘the degree of care which the law requires in order to guard against injury to others varies greatly according to the circumstances of the case.’” In re Frescati, 718 F.3d at 211 (quoting Richardson, 91 U.S. at 469-70.)

3. CARCO Breached the Standard of Care By Failing to Search for Hazards to Navigation and By Failing to Remove Them or to Warn Incoming Vessels of Their Presence.

Thus, CARCO breached its standard of care because it has admitted that it did not search the approach for obstructions and did not remove or warn incoming vessels of obstructions. The Third Circuit determined that CARCO “never specifically searched for debris or other hazards.” In re Frescati, 718 F.3d at 194. Remarkably, Port Captain William Rankine testified, “We didn’t search specifically for debris and hazards in our berthing area . . .” (Rankine Tr., 140:3-5, May 27, 2015.) Under the circumstances, CARCO breached the standard of care. See Sonat Marine, Inc. v. Belcher Oil Co., 629 F. Supp. 1319, 1325 (D.N.J. 1985) (the “first act of negligence was failure to use means adequate to ensure that the new area where it thought larger barges could safely go was free of obstructions . . .”).

4. CARCO’s Breach Was the Proximate Cause of Damage to the Athos I and of the Oil Spill.

Having found that CARCO breached its duty, this Court must determine whether the breach proximately caused the accident. The question is “whether the accident would have been prevented had CARCO exercised its duty to act as a prudent wharfinger within the approach. At a minimum, this requires ‘that the injury would not have occurred without the defendant’s negligent act.’” In re Frescati, 718 F.3d at 212 (quoting 1 Schoenbaum, supra, § 5-3, at 259). This finding turns on whether prudent behavior, which is a factual inquiry, would have prevented the accident. Id. In addition, although an unknown entity dropped and abandoned the anchor in the approach to CARCO’s berth, the Court of Appeals has stated “that there may be more than one proximate cause of an injury.” Id. (quoting Serbin v. Bora Corp., 96 F.3d 66, 75 (3d Cir. 1996)).

Initially, CARCO alleges that it acted prudently because it could not have foreseen that the Athos I would have collided with the unknown, abandoned anchor in Federal Anchorage Number Nine. (Doc. No. 866 ¶ 359.) But, given the circumstances, the kind of harm the Athos I suffered as a result of the submerged anchor was foreseeable and resulted from CARCO's failure to conduct side-scan sonar searches of the approach to its terminal.

Next, because CARCO was inviting oil tankers with drafts of 37 feet or less to cross the approach to its terminal at potentially low stages of the tide, CARCO's failure to conduct side-scan sonar surveys of the approach put these tankers at risk of being damaged by striking an obstruction and hazard to navigation in the approach. The Athos I was within the class of ships that CARCO put at risk by its negligent conduct.

Finally, performing side-scan sonar searches would have prevented the accident from occurring because it would have led to the discovery of the hazard or obstruction before the Athos I journeyed to CARCO's terminal. The parties have stipulated that the abandoned anchor that struck the Athos I had been in the same location within the approach for at least three years prior to the accident. In re Frescati, 718 F.3d at 193. Side-scan sonar would have revealed the presence of the anchor and would have allowed CARCO to either remove it from the approach, mark it as a hazard, or warn Frescati of its presence. These actions would have prevented the accident from occurring. Because the type of risk here was foreseeable to CARCO under all the circumstances, and prudent behavior would have prevented the accident, the failure to conduct periodic side-scan sonar searches proximately caused the allision.

ii. CARCO's Claim of Negligent Navigation and Seamanship Does Not Defeat Frescati's Negligence Claim.

As stated in the Conclusions of Law regarding breach of the safe berth warranty, Frescati and its crew did not engage in poor navigation and seamanship. For this reason, CARCO's contention that this conduct amounts to a superseding cause of the accident is without merit.

Moreover, to prevail on the claim of a superseding cause, CARCO is required to prove that "the defendant's negligence in fact substantially contributed to the plaintiff's injury, but the injury was actually brought about by a later cause of independent origin that was not foreseeable." Exxon Co., U.S.A. v. Sofec, Inc., 517 U.S. 830, 837 (1996) (quoting 1 Schoenbaum, Admiralty and Maritime Law § 5-3, at 165-66 (2d ed. 1994)). "Superseding cause operates to cut off the liability of an admittedly negligent defendant . . . where there is an absence of proximate causation." Id.

The accident here was not brought about by any alleged conduct of the Athos I crew or Frescati. It was proximately caused only by the negligent conduct of CARCO. No negligent navigation or seamanship was the superseding cause of this accident. Thus, Frescati is entitled to a judgment in its favor on the negligence claim.

D. The Pennsylvania Rule Does Not Afford CARCO Any Relief.

CARCO contends that a rule known as the "Pennsylvania Rule" applies in this case and would bar Frescati from recovering. The Pennsylvania Rule, established long ago in the case The Pennsylvania, provides, "when . . . a ship at the time of a collision is in actual violation of a statutory rule intended to prevent collisions, it is no more than a reasonable presumption that the fault, if not the sole cause, was at least a contributory cause of the disaster." 86 U.S. 125, 136 (1873). When the Pennsylvania rule applies, it shifts the burden to the owner or operator of the

ship to show that its fault could not have been the cause of the accident. *Id.* The Pennsylvania Rule initially has three elements:

(1) proof by a preponderance of the evidence of a violation of a statute or regulation that imposes a mandatory duty; (2) the statute or regulation must involve marine safety or navigation; and (3) the injury suffered must be of a nature that the statute or regulation was intended to prevent.

In re Nautilus, 85 F.3d 105, 114 (3d Cir. 1996).

If the Pennsylvania Rule applies, the violator may rebut the presumption that the fault, if not the sole cause, was at least a contributory cause of the disaster. There are several ways to do so. First, “a violator of a navigational statute may not be held liable under the Pennsylvania Rule if the other party to the accident is found to be solely responsible.” 2 Schoenbaum, supra, § 14-3, at 126. Second, the violator may rebut the presumption “by making a clear and convincing showing that the violation could not have been a proximate cause of the collision, [] or by demonstrating that the accident would have occurred despite the statutory violation.” In re Nautilus, 85 F.3d at 114 (citations omitted). This precept was confirmed by the Supreme Court in The Martello, which held that “a vessel guilty of statutory fault must satisfy the burden of proving that the statutory violation ‘could not by any possibility have contributed to the collision.’” 2A Benedict on Admiralty, supra § 87, at 8-9 (quoting The Martello, 153 U.S. 64, 75 (1894)).

The Pennsylvania Rule “applies only to violations of statutes that delineate a clear legal duty, not regulations that require judgment and assessment of a particular circumstance.” Tokio Marine & Fire Ins. Co. v. FLORA MV, 235 F.3d 963, 966 (5th Cir. 2001). The Pennsylvania Rule does not shift the burden where a party failed to comply with regulatory language that is “suggestive, rather than mandatory.” Id. at 967. Moreover, although both The Pennsylvania and The Martello decisions concerned liability arising out of a collision, “their principle is part of

cargo damage law.” 2A Benedict on Admiralty, supra § 87 at 8-9. Thus, “[i]f the condition of a vessel as to structure, stowage, or manning violates a statute or a binding regulation, she is not only unseaworthy but is guilty of statutory fault.” Id.

CARCO alleges that Frescati has violated various federal regulations and international maritime conventions by failing to meet the requirements for voyage planning, calculation of underkeel clearance, and the master-pilot exchange. (Doc. No. 867 at 123.) First, CARCO alleges a violation of 33 C.F.R. § 157.455(a)-(b), which is a special single-hull tanker regulation issued by the Coast Guard. CARCO argues that Frescati violated this regulation by failing to plan the vessel’s voyage in advance from berth to berth, failing to include updated and correct anticipated minimum underkeel clearance, failing to consider estimated times of arrival, failing to set forth the details of the voyage plan, and failing to closely monitor and revise the plan based on changed circumstances. (Doc. No. 866 ¶ 126.) As noted above, 33 C.F.R. § 157.455(a)-(b) provides:

(a) The owner or operator of a tankship, that is not fitted with a double bottom that covers the entire cargo tank length, shall provide the tankship master with written under-keel clearance guidance that includes—

- (1) Factors to consider when calculating the ship’s deepest navigational draft;
- (2) Factors to consider when calculating the anticipated controlling depth;
- (3) Consideration of weather or environmental conditions; and
- (4) Conditions which mandate when the tankship owner or operator shall be contacted prior to port entry or getting underway; if no such conditions exist, the guidance must contain a statement to that effect.

(b) Prior to entering the port or place of destination and prior to getting underway, the master of a tankship that is not fitted with the double bottom that covers the entire cargo tank length shall plan the ship’s passage using guidance issued under paragraph (a) of this section and estimate the anticipated under-keel clearance. The tankship master and the pilot shall discuss the ship’s planned transit including the anticipated under-keel clearance. An entry must be made in the tankship’s

official log or in other onboard documentation reflecting discussion of the ship's anticipated passage.

Frescati did not violate 33 C.F.R. § 157.455(a)-(b). This Court has found that the vessel's voyage was planned adequately in advance, the Athos I had at least 5 feet of underkeel clearance at the time of the casualty, the ship docked at the correct time, and the master-pilot exchanges were conducted properly. Specifically, as already discussed, Captain Howard Teal, a Delaware River Pilot, and Captain Markoutsis, the Captain of the Athos I, before the casualty had conversations about the conditions of the river, the anticipated draft of the ship, and other pertinent matters. (Teal Tr., 51:12-52:18, 160:11-15, Mar. 16, 2015.) Captain Teal also signed a pilot card indicating the draft and other conditions of the Athos I. (Teal Tr., 59:10-23, Mar. 16, 2015; Pilot Card, Ex. P-466.) Captain Bethel, the docking pilot, also engaged in appropriate exchanges. Because the Court finds that the voyage was adequately planned, there was sufficient underkeel clearance, the docking time was correct, and the master-pilot exchanges were conducted properly, there was no violation of 33 C.F.R. § 157.455(a)-(b).

Second, CARCO alleges that the Athos I was not equipped with a wheelhouse poster as required by single-hull tankers in violation of 33 C.F.R. § 157.450. This regulation provides that “[a] tankship owner, master, or operator shall comply with [International Marine Organization (IMO)] Resolution A.601(15), Annex sections 1.1, 2.3, 3.1, and 3.2, with appendices.” IMO Resolution A.601(15) provides in relevant part:

1 Introduction

1.1 . . . Administrations are recommended to require that the [maneuvering] information given herewith is on board and available to navigators.

1.2 The [maneuvering] information should be presented as follows:

- .1 Pilot card
- .2 Wheelhouse poster
- .3 [Maneuvering] booklet

2 Application

2.1 The Administration should recommend that [maneuvering] information, in the form of the models contained in the appendices, should be provided as follows:

- .1 for all new ships to which the requirements of the 1974 SOLAS Convention, as amended, apply, the pilot card should be provided;
- .2 for all new ships of 100 metres in length and over, and all new chemical tankers and gas carriers regardless of size, the pilot card, wheelhouse poster and [maneuvering] booklet should be provided.

2.2 The Administration should encourage the provision of [maneuvering] information on existing ships, and ships that may pose a hazard due to unusual dimensions or characteristics.

IMO Resolution A.601(15) (emphasis added).

Frescati was not in violation of 33 C.F.R. § 157.450. Captain Betz testified that it was not customary for a river pilot to review the wheelhouse poster or the voyage plan. (Betz Tr., 24:4-19, Mar. 18, 2015.) He explained that “the information that is contained [on a wheelhouse poster], some of it is also typically contained on the pilot card, such as the maneuvering characteristics of the ship, the RPMs, the engine power, things of that nature. . . . The rest of the information that is on the wheelhouse poster is not information that I need to do my job.” (Betz Tr., 24:9-16, Mar. 18, 2015.) As previously stated, Captain Teal testified that he signed this pilot card. Additionally, Captain Bethel testified that the information that would have been on the wheelhouse poster is passed on to him when he boards the ship, and that he asks the Captain essentially everything he needs to know. (Bethel Tr., 71:3-23, Mar. 17, 2015.)

In addition, although it states in 33 C.F.R. § 157.450 that there shall be compliance with IMO Resolution A.601(15), this Resolution is replete with the words “recommend,” “recommended,” and “should encourage.” The Resolution therefore has discretionary elements, rendering it suggestive rather than mandatory. In any event, even without a wheelhouse poster,

an experienced captain and pilots navigated the Athos I before the allision, and they had sufficient knowledge and expertise to maneuver and dock the ship. Finally, there has been no evidence presented that the Athos I posed “a hazard due to unusual dimensions or characteristics.” Thus, Frescati was not in violation of 33 C.F.R. § 157.450. Moreover, CARCO’s claims of alleged violations were not the proximate cause of the allision.

Third, CARCO alleges a violation of IMO Resolution A.893(21) for failing to prepare a voyage plan. IMO Resolution A.893(21)(3.1) provides in relevant part, “On the basis of the fullest possible appraisal, a detailed voyage or passage plan should be prepared which should cover the entire voyage or passage from berth to berth, including those areas where the services of a pilot will be used.” The Resolution also provides factors which should be included in the voyage or passage plan, including but not limited to the following:

3.2.2) the main elements to ensure safety of life at sea, safety and efficiency of navigation, and protection of the marine environment during the intended voyage or passage; such elements should include, but not be limited to:

3.2.2.1) safe speed, having regard to the proximity of navigational hazards along the intended route or track, the [maneuvering] characteristics of the vessel and its draught in relation to the available water depth;

3.2.2.2) necessary speed alterations en route, e.g., where there may be limitations because of night passage, tidal restrictions, or allowance for the increase of draught due to squat and heel effect when turning;

3.2.2.3) minimum clearance required under the keel in critical areas with restricted water depth;

...

IMO Resolution A.893(21). This Court has already determined that Captain Markoutsis, as well as Pilots Bethel and Teal, had an adequately planned voyage when they had primary responsibility for navigating the ship. In fact, Captain Teal testified that he did not rely on charts when undertaking navigation, but instead relied on a mental chart or his own personal knowledge

and experience. (Teal Tr., 19:4-9, Mar. 17, 2015.) Additionally, Captain Betz determined that the master-pilot exchanges between Captain Markoutsis and Pilots Teal and Bethel were adequate and appropriate. (Betz Tr., 22:8-23:4, 26:1-27:16, 47:3-23, Mar. 18, 2015.) Thus, this Court finds no violation of IMO Resolution A.893(21).

Fourth, CARCO also alleges a violation of IMO Resolution A.741(18) and 33 C.F.R. § 96.220-250, which direct ship owners to implement a written safety management system, to comply with international and national regulatory requirements, and to have in place procedures to detect and correct any non-compliance or maintenance failures. Again, the Court finds that, based on the Findings of Fact and the knowledge and expertise of the crewmembers, master, and river pilots, no violation of either of these regulations has been proven that would be a proximate cause of the allision.

Fifth, CARCO alleges a violation of Regulation 34 of the amended Chapter V of the SOLAS Convention. This Regulation provides, in relevant part:

- 1 Prior to proceeding to sea, the master shall ensure that the intended voyage has been planned using the appropriate nautical charts and nautical publications for the area concerned, taking into account the guidelines and recommendations developed by the Organization.
- 2 The voyage plan shall identify a route which:
 -4 takes into account the marine environmental protection measures that apply, and avoids as far as possible actions and activities which could cause damage to the environment.
- 3 The owner, the charterer, or the company, as defined in regulation IX/1, operating the ship or any other person, shall not prevent or restrict the master of the ship from taking or executing any decision which, in the master's professional judgment, is necessary for safe navigation and protection of the marine environment.

Again, this Court has determined that Captain Markoutsis and Pilots Bethel and Teal had an adequately planned voyage. There is no evidence that Frescati prevented or restricted them from

making a decision necessary for safe navigation and protection of the environment. Thus, Frescati did not violate Regulation 34 of the amended Chapter V of the SOLAS Convention.

Finally, CARCO alleges that Frescati's master-pilot exchange was in violation of 33 C.F.R. § 164.11, which was a general navigation regulation that applied to all vessels in 2004. This regulation provides:

The owner, master, or person in charge of each vessel underway shall ensure that:

(a) The wheelhouse is constantly manned by persons who:

- (1) Direct and control the movement of the vessel; and
- (2) Fix the vessel's position;

(b) Each person performing a duty described in paragraph (a) of this section is competent to perform that duty;

(c) The position of the vessel at each fix is plotted on a chart of the area and the person directing the movement of the vessel is informed of the vessel's position;

(d) Electronic and other navigational equipment, external fixed aids to navigation, geographic reference points, and hydrographic contours are used when fixing the vessel's position;

(e) Buoys alone are not used to fix the vessel's position; . . .

33 C.F.R. § 164.11. No credible evidence was presented that this regulation was violated. The master-pilot exchanges were performed in the proper manner, and all necessary information was exchanged. The crew of the Athos I and the River Pilots performed their duties adequately. This Court finds no violation of 33 C.F.R. § 164.11.

Thus, Frescati did not violate any of the foregoing regulations or guidelines. As noted, several of the statutes and regulations are suggestive and allow for interpretation or judgment on the part of Frescati and its crew. In addition to the language that has been pointed out in the IMO Resolution A.601(15), other regulations leave it to the discretion of the master or pilot to

ensure that certain conditions are met. Even though the regulations use the words “shall ensure,” they still convey discretionary decision-making because ships, routes, and conditions will vary. For this reason, experienced captains and pilots are critical to a ship’s seaworthiness and navigation. The Athos I had the benefit of experienced navigators.

It appears that CARCO has relied in this case on every maintenance failure and statutory violation it could find, and contends that the statutes were not followed by Frescati or its crew or the Delaware River pilots. But the Athos I was seaworthy and navigable and operated by an experienced team. No alleged statutory or regulatory violation caused or contributed to the allision with the anchor despite the considerable effort of CARCO to shift blame.

Lastly, Frescati has proven that the Athos I’s seaworthiness did not contribute to the accident, and the crew did not engage in poor navigation and seamanship. Therefore, Frescati has made a clear and convincing showing that any alleged violation of a statute or regulation was not the proximate cause of, and did not contribute to, the collision. See In re Nautilus, 85 F.3d at 114. None of the alleged violations had any correlation to the accident. Id.

Frescati has overcome any reasonable presumption that its conduct was the cause of, or contributed to, the accident. CARCO’s negligence, and not any violation of a statute or regulation by Frescati, caused this accident. For all these reasons, the Pennsylvania Rule will not afford CARCO any relief in this case.

E. CARCO’s Spoliation and Best Evidence Motions

CARCO has alleged that Frescati spoliated evidence, and therefore has moved this Court for an order either dismissing this case or drawing an adverse inference against Frescati. (Doc. No. 754.) CARCO alleges that Frescati lost, destroyed, or altered the following documents: the original voyage plan of the Athos I, the rough deck log, the cargo control room log, the pump

room patrol logs, the wheelhouse poster, and the original Anko Loadicator data.¹¹⁰ (Id.) CARCO also contends that Frescati failed to produce in discovery relevant photographs, e-mails, and other documentation relating to the Athos I casualty. (Id.) In addition to moving this Court for an adverse inference or dismissal, CARCO asserts that the best evidence rule, codified in Federal Rule of Evidence 1002, et seq., applies here, arguing that only originals, permissible duplicates, and other documents admissible under these rules should be considered in this case. (Doc. No. 755.)

Spoliation occurs when relevant evidence in a party's control has been suppressed or withheld from the other side. Bull v. United Parcel Service, 665 F.3d 68, 73 (3d Cir. 2012). A party's duty to preserve the evidence must, however, have been reasonably foreseeable. Id. Upon an initial showing of spoliation, the court must determine whether sanctions are appropriate by considering:

(1) [T]he degree of fault of the party who altered or destroyed the evidence; (2) the degree of prejudice suffered by the opposing party; and (3) whether there is a lesser sanction that will avoid substantial unfairness to the opposing party, and where the offending party is seriously at fault, will serve to deter such conduct by others in the future.

Id. at 73 n.5 (quoting Schmid v. Milwaukee Elec. Tool Corp., 13 F.3d 76, 79 (3d Cir. 1994)). An adverse inference is an appropriate sanction only when there has been a showing that the party intentionally or in bad faith withheld the relevant evidence requested by the other side. Id. at 79.

Shortly after the accident, Captain Hajimichael, President of Tsakos, instructed Captain Markoutsis to preserve all documents that might be relevant to this case, including handwritten notes. (Hajimichael Tr., 122:4-123:8, 137:2-10, Oct. 18, 2010.) In addition, Frescati searched

¹¹⁰ As noted, the Anko Marine Load Planner, also referred to as the Anko Loadicator, was a computer program used aboard the Athos I to aid in cargo loading operations. The Anko Loadicator calculated the weights loaded onto a vessel, among other things. The Anko reports included the calculated data.

for and collected the documents from the Athos I for preservation and retention before the vessel was passed out of its control. (Hajimichael Tr., 123:9-124:2, Oct. 18, 2010.) To the extent that CARCO has made requests for documents relating to the Athos I allision, Frescati has produced the documents it has located. Frescati has sent over 100,000 pages of documents and other materials to CARCO over the course of this litigation. (Doc. No. 765 at 2.)

Addressing CARCO's specific allegations, with regard to the voyage plan, the evidence shows that it was standard practice onboard the ship to finalize the draft voyage plan form at the end of the voyage and to retain only the final form. The final form was produced. With regard to the rough deck log and cargo control room log, copies and photographs of pages from the log books have been produced. CARCO argues that pages are missing and the original complete log books have not been produced. However, there is no evidence that pages were removed or alterations were made intentionally or in bad faith. Additionally, CARCO alleges that the bridge log book did not contain an entry for ballasting operations on November 26, 2004. Lack of an entry does not indicate that the bridge log book was altered or spoliated.

With regard to the pump room patrol log, the log was requested by CARCO in late 2005 after the ship had been sold, and despite a search, the log was not recovered. With regard to the wheelhouse poster, there is evidence that one did not exist and was not on the ship. With regard to the Anko reports, the reports were merely reprinted with the correct date, and there is no evidence of any changes to the data.

Furthermore, regarding the photographs of the ballast system taken two weeks prior to the incident, they were emailed to a personal account and were never on the company server. Initially, CARCO has only made vague allegations regarding emails alleged to have been withheld. The photographs relate to a suggestion by CARCO that there was extra ballast on

board, but there is no evidence to support that assertion. The testimony of Messrs. Bowman and Hall shows that the photographs are also irrelevant because the ballast tanks were dry. Furthermore, while the photographs are missing, there is no evidence to satisfy the bad faith requirement.

Frescati did not intentionally or in bad faith lose, alter, or destroy evidence relevant to this case. The documentation that is missing did not lead to any events that caused or contributed to the casualty. For this reason, this Court will not draw an adverse inference against Frescati, and will rely on the testimony of witnesses who testified at the Rule 63 proceeding and other evidence that properly may be considered. Moreover, the testimony and exhibits presented at the Rule 63 proceeding did not violate the best evidence rule. Consequently, CARCO's spoliation and best evidence motions will be denied.

F. CARCO's Equitable Defenses

CARCO argues that its liability for the casualty should be limited by three equitable defenses. They are equitable recoupment, equitable estoppel, and unjust enrichment. (Doc. No. 867 at 219-51.) CARCO does "not request affirmative relief, [but] has asserted its equitable rights and defenses solely for the purpose of offsetting or reducing the Government's subrogation claim." (*Id.* at 221.) CARCO's equitable defenses apply to the Government through its subrogation claim, and do not apply to Frescati.

Over a century ago, the Supreme Court noted in The Eclipse, "While the court of admiralty exercises its jurisdiction based on equitable principles, it has not the characteristic powers of a court of equity." 135 U.S. 599, 608 (1890). Over time, however, courts have retreated from the traditional rule against equity outlined in The Eclipse. 1 Benedict on Admiralty ch. VIII, § 126 (7th ed. 2015). For instance, in Swift & Co. Packers v. Compania

Colombiana del Caribe, S.A., the Supreme Court permitted equitable relief when it was “subsidiary to issues wholly within admiralty jurisdiction.” 339 U.S. 684, 692 (1950). The Court explained that to do otherwise would “hobble a legal system that has been so responsive to the practicalities of maritime commerce and so inventive in adapting its jurisdiction to the need of that commerce.” Id. at 691. The doctrine of The Eclipse has “been much criticized, has been narrowed by statute, and has been abandoned altogether by some lower courts.” 1 Benedict on Admiralty, supra § 126; see also Rice v. Charles Dreifus Co., 96 F.2d 80, 83 (2d Cir. 1938) (“Courts of admiralty have always professed to proceed upon equitable principles”).

Courts are now inclined to grant equitable relief in admiralty disputes. 1 Benedict on Admiralty, supra § 126. In Pino v. Protection Maritime Ins. Co., the First Circuit stated:

[W]e find no constitutional, statutory or policy reasons of substance for recognizing a continued limitation upon the power of federal courts sitting in admiralty, nor does it seem likely that the Supreme Court would today adhere to the traditional rule. District courts sitting in admiralty, which now operate under virtually the same procedures as they do otherwise, should be able to provide the kind or degree of remedy that will properly and fully redress an injury within their jurisdiction, in keeping with the same principles as they would apply in other comparable cases. . . . [W]here equitable relief is otherwise proper under usual principles, it will not be denied on the ground that the court is sitting in admiralty.

599 F.2d 10, 16 (1st Cir. 1979), cert. denied, 444 U.S. 900 (1979) (internal citations omitted); see also Kingstate Oil v. M/V Green Star, 815 F.2d 918, 922 (3d Cir. 1987) (stating that “[a] district court sitting in admiralty . . . has inherent equitable power to give priority to claims arising out of the administration of property within its jurisdiction where ‘equity and good conscience’ so require.”); Oil Shipping (Bunkering) B.V. v. Royal Bank of Scotland, 817 F. Supp. 1254 (E.D. Pa. 1993) (explaining that the court’s inherent equitable power may be exercised in admiralty disputes).

In granting equitable relief when justice so requires, a court may apportion damages or determine the scope of such relief based on equitable principles. In Pino, the First Circuit recognized that courts “should be able to provide the kind or degree of remedy that will properly and fully redress an injury within their jurisdiction.” Pino, 599 F.2d at 16 (emphasis added). There, the First Circuit assessed the scope of the injunction granted by the trial court to ensure that it was “properly tailored ‘to remedy the specific harm shown.’” Id. (citation omitted). Granting equitable relief must be done carefully to address the harm shown while simultaneously preventing unjustified, blanket grants of relief. See Kingstate Oil, 815 F.2d at 922 (assessing whether the district court granted the appropriate scope of injunctive relief); see also Black v. Red Star Towing & Transp. Co., 860 F.2d 30, 34 (2d Cir. 1988) (explaining that “equity, which ‘is no stranger in admiralty,’” required a third party tortfeasor to reimburse an innocent ship owner, but limited recovery to the third party’s proportionate share of fault). Accordingly, courts sitting in admiralty may evaluate both the type of equitable remedies available and to what extent such remedies should be applied. Since equitable principles apply in admiralty disputes, the Court will carefully examine the equitable defenses CARCO has asserted here.

This Court has already concluded that CARCO breached the safe berth warranty by failing to provide a safe approach for the Athos I, which was sailing with a draft of less than 37 feet. As a result, CARCO is fully liable to Frescati for breach of the safe berth warranty. The Government, as a statutory subrogee, stands in the shoes of Frescati on the breach of the safe berth warranty. For the reasons that follow, however, this Court finds that the Government’s conduct warrants an equitable finding that CARCO is not fully liable to the Government on its nearly \$88 million reimbursement claim.

i. CARCO Is Not Precluded from Raising Equitable Defenses Against the Government by Virtue of the Government's Statutory Subrogation Claim Under the Oil Pollution Act of 1990.

Initially, the Government contends that by virtue of its position as Frescati's statutory subrogee pursuant to the terms of OPA, CARCO is precluded from raising equitable defenses to its subrogation claim. (Doc. No. 864 at 65.) In particular, the Government argues that its right to subrogation under OPA displaces equitable principles. (*Id.* at 65.) As a result, the Government asserts that CARCO is barred from raising equitable defenses in response to its subrogation claim. For the following reasons, this Court disagrees.

Under the provisions of OPA, the Government may assume the position of a subrogee to pursue claims against a person responsible for oil pollution. Subrogation occurs when “one person is allowed to stand in the shoes of another and assert that person’s rights against’ a third party.” US Airways, Inc. v. McCutchen, 133 S. Ct. 1537, 1546 n.5 (2013) (quoting 1 D. Dobbs, Law of Remedies § 4.3(4), at 604 (2d ed. 1993)). OPA established a statutory right to subrogation by providing:

Any person, including the Fund, who pays compensation pursuant to this Act to any claimant for removal costs or damages shall be subrogated to all rights, claims, and causes of action that the claimant has under any other law.

33 U.S.C. § 2715(a).

OPA has another provision that can make the Government a subrogee. Under 33 U.S.C. § 2712(f), “[p]ayment of any claim or obligation by the Fund under this Act shall be subject to the United States Government acquiring by subrogation all rights of the claimant or State to recover from the responsible party.” Once the Fund has compensated a claimant, it is subrogated to all rights the claimant has under any law. 33 U.S.C. § 2715(a).

The Government’s right to subrogation under OPA does not preclude all equitable defenses. As the savings provision of OPA explains,

Except as otherwise provided in this Act, this Act does not affect—

- (1) admiralty and maritime law; or
- (2) the jurisdiction of the district courts of the United States with respect to civil actions under admiralty and maritime jurisdiction, saving to suitors in all cases all other remedies to which they are otherwise entitled.

33 U.S.C. § 2751(e). The Government contends that the language “except as otherwise provided” in this Section preempts equitable defenses. (Doc. No. 864 at 65.) Specifically, the Government argues, “the savings clause may not be used to limit rights established by OPA.” (*Id.*) This interpretation is unconvincing. First, the savings clause allows other claims and defenses arising out of admiralty law to be raised, even when provisions of OPA are included in the dispute. Second, the savings clause alone is not being used to “limit the rights established by OPA.” Rather, it merely allows other matters arising under admiralty law, including defenses, to be raised.

The partial settlement agreement between the Government and CARCO and the directives in this case from the Third Circuit indicate that CARCO is not barred from raising equitable defenses against the Government.¹¹¹ First, the partial settlement agreement between CARCO and the Government shows that the Government’s rights against CARCO are limited. In the settlement agreement, the Government waived all rights against CARCO that might exist apart from the voyage charter party and the bill of lading. (Doc. No. 340-1.) It provides that the Government will not “assert, file, commence, prosecute, or pursue any other claims, demands, causes of action, or legal theories of recovery against CITGO based in tort, equity, strict liability, nuisance, trespass, or any other common law or statute against CITGO.” (*Id.*) This provision

¹¹¹ As noted earlier, the Government settled with CARCO on any negligence claim and is only a subrogee on the breach of the safe berth warranty claim.

alone would prevent the Government from asserting any claim under OPA against CARCO that would bar CARCO's equitable defenses.

Second, the Third Circuit expressly stated that it "decline[d] to preclude CARCO from revisiting any previously raised equitable defense to the Government's subrogation claims." In re Frescati, 718 F.3d at 214.¹¹² Given the Third Circuit's directive that "the question of subrogation defenses [by CARCO] is better resolved with the benefit of a full trial record," and for the reasons noted above, this Court concludes that CARCO may raise equitable defenses. See id. (citing J.A. at 101). Therefore, an examination of each equitable defense asserted by CARCO will be undertaken.

ii. CARCO's Defense of Equitable Recoupment Will Reduce the Amount of Reimbursement to the Government.

CARCO argues that the equitable defense of recoupment limits the Government's recovery for the cleanup expenses resulting from the Athos I oil spill.¹¹³ Recoupment is a common law equitable doctrine that is purely defensive in character, and can be used only to defeat or diminish a plaintiff's recovery. United States v. Am. Color & Chem. Corp., 858 F.

¹¹² As the Third Circuit noted:

The Government argues that CARCO has attempted to circumvent this partial settlement agreement by presenting against it negligence claims couched as equitable defenses. CARCO explicitly retained "the right to raise affirmative defenses under any theory or doctrine of law or equity, the right to assert setoff or recoupment and the right to assert compulsory or non-compulsory counterclaims other than a Claim for Contribution or Indemnity . . ." J.A. at 97 (Release ¶ 4.2). It was further agreed that the partial settlement would have no force as to CARCO's suit with Frescati. Id. at 97-98 (Release ¶ 4.3).

In re Frescati, 718 F.3d at 214 n.34.

¹¹³ CARCO concedes that its equitable defenses can result in a whole or partial offset of the Government's claim. In CARCO's Post-Trial Brief on Liability, it states, "CARCO has expressly pleaded equitable defenses, including the equitable doctrine of recoupment, as an offset *in whole or in part* to the Government's claims." (Doc. No. 867 at 218 (emphasis added).)

Supp. 445, 451 (M.D. Pa. 1994). In other words, “[r]ecoulement is a common law, equitable doctrine that permits a defendant to assert a defensive claim aimed at reducing the amount of damages recoverable by a plaintiff.” Pension Benefit Guar. Corp. v. White Consol. Indus. Inc., 72 F. Supp. 2d 547, 550 (W.D. Pa. 1999) (quoting United States v. Keystone Sanitation Co., Inc., 867 F.Supp. 275, 282 (M.D. Pa. 1994)). Equitable recoulement is a defense that “seeks to diminish a claim or to defeat recovery rather than to share in it.” Folger Adam Security, Inc. v. DeMatteis/MacGregor, JV, 209 F.3d 252, 260 (3d Cir. 2000) (citing Black’s Law Dictionary 419 (6th ed. 1990)). CARCO’s defense of recoulement relies on equity, and in no way relies on allegations or evidence of negligence on the part of the Government. (Doc. No. 867 at 223.) In assessing recoulement as a defense, the court examines the transaction as a whole to determine whether the facts warrant application of the defense.

Recoulement allows a defendant to assert a defense that might otherwise be barred if it was brought in a separate action. For example, recoulement can be asserted, and sovereign immunity is waived, when the Government brings suit. See United States v. Shaw, 309 U.S. 495, 502 (1940) (allowing waiver of sovereign immunity asserted against a cross-claim when the Government voluntarily sued); see also United Philippine Lines, Inc. v. Submarine USS Daniel Boone, 475 F.2d 478, 479 (4th Cir. 1973) (holding that the United States waived sovereign immunity by taking the position of a private litigant and asserting a counterclaim against a vessel that collided with a United States submarine). Because the Government brought suit against CARCO here, its sovereign immunity is waived as to CARCO’s recoulement defense.

The Government also asserts that CARCO is barred from asserting the equitable defense of recoulement because it was not raised as a separate, quantifiable “claim.” (Doc. No. 864 at 60.) Rather, it asserts that recoulement was raised solely as a defense to CARCO’s liability. (Id.)

This argument is flawed for two reasons. First, the Court finds that CARCO is pursuing its equitable rights through a claim. Second, recoupment may be pled either as a claim or as a defense.

CARCO is pursuing its equitable rights pursuant to the limited settlement agreement with the Government. (Doc. No. 340-1.) The settlement agreement provides, in part:

It is further understood and agreed by the Parties that CITGO reserves and retains each and every substantive and procedural right available to a defendant in connection with the claims asserted by the United States in the Lawsuit which is not expressly waived or released by CITGO in Section 3.1 of this Agreement, including but not limited to the right to raise affirmative defenses under any theory or doctrine of law or equity, the right to assert setoff or recoupment and the right to assert compulsory or non-compulsory counterclaims other than a Claim for Contribution or Indemnity, none of which rights are waived, relinquished, limited, conditioned, released or discharged by this Agreement, except and to the extent expressly waived and released by CITGO in Section 3.1 of this Agreement.

(Id. ¶ 4.2 (emphasis added).) Pursuant to this limited settlement agreement, CARCO is raising the claim that the Government shares responsibility for the allision and that CARCO has the right to a setoff or recoupment, which could have been raised as a counterclaim.

In addition, recoupment may be pled either as a claim or as a defense. Although it may be better practice to assert recoupment as a counterclaim under Rule 13(a) of the Federal Rules of Civil Procedure, recoupment may also be pled as a defense. The Supreme Court has recognized that “it is not clear whether set-offs and recoupments should be viewed as defenses or counterclaims.” Reiter v. Cooper, 507 U.S. 258, 263 (1993) (quoting 5 C. Wright & A. Miller, Federal Practice and Procedure § 1275, at 459-460 (2d ed. 1990)). Some courts have permitted recoupment as a defense, while others have narrowly recognized it only in the form of a counterclaim. See Bull v. United States, 295 U.S. 247, 262 (1935) (explaining that “recoupment is in the nature of a defense arising out of some feature of the transaction upon which the plaintiff’s action is grounded”); United States v. U.S. Fidelity & Guar. Co., 309 U.S. 506, 511

(stating that the defendant “may, without statutory authority, recoup on a counterclaim an amount equal to the principal claim”). When it is unclear whether recoupment should be pled as a defense or as a counterclaim, “the courts, by invoking the misdesignation provision in [Fed. R. Civ. P.] 8(c), should treat the matter of this type as if it had been properly designated by the defendant, and should not penalize improper labeling.”¹¹⁴ 5 Charles Alan Wright & Arthur R. Miller, Federal Practice and Procedure § 1275 (3d ed. 2016). In its initial Answer to the Government’s Complaint, CARCO included the equitable defense of recoupment. (Civil Action No. 08-2898, Doc. No. 11.)

Regardless of whether CARCO raised a “claim” or “defense” in asserting recoupment, this Court will resolve the issue of recoupment on the merits. In this regard, the Third Circuit expressly stated that it “decline[d] to preclude CARCO from revisiting any previously raised equitable defense to the Government’s subrogation claim.” In re Frescati, 718 F.3d at 214. Given the Third Circuit’s agreement that “the question of subrogation defenses [by CARCO] is

¹¹⁴ Rule 8(c)(2) of the Federal Rules of Civil Procedure states:

(2) Mistaken Designation. If a party mistakenly designates a defense as a counterclaim, or a counterclaim as a defense, the court must, if justice requires, treat the pleading as though it were correctly designated, and may impose terms for doing so.

Fed. R. Civ. P. 8(c). In discussing Rule 8(c), Judge (then Dean) Charles E. Clark, one of the architects of the federal rules, noted that:

In many situations, particularly dealing with equitable defenses or defenses which formerly in chancery would have been separate bills of relief, it is easy to make a slip on the unimportant matter of designation. We put it that when the party or his attorney is mistaken, the rule applies, but often the mistake isn’t his fault; it is just that he didn’t know what the court was going to call the pleading, because in certain jurisdictions now you can’t be sure when the court is going to regard an equitable claim of that kind as really a defense or as a counterclaim.

5 Charles Alan Wright & Arthur R. Miller, Federal Practice and Procedure § 1275 (3d ed. 2016) (quoting Proceedings, Cleveland Institute on the Federal Rules, 1938, at 231).

better resolved with the benefit of a full trial record,” the Court will examine CARCO’s defense of recoupment on the merits. Id. (citing J.A. at 101).

Recoupment against the United States Government must “arise[] out of the same transaction or occurrence as the main suit and the relief sought neither exceeds nor is different from that demanded by the sovereign.” Livera v. First Nat. State Bank of New Jersey, 879 F.2d 1186, 1195 (3d Cir. 1989) (quoting United States v. Penn, 632 F. Supp. 691, 693 (D.V.I. 1986)). Therefore, to recover under a theory of recoupment, the defendant must show that: (1) the defendant’s claim arises from the same transaction or occurrence as the plaintiff’s claim, (2) the claim seeks relief of the same kind and nature as that sought by the plaintiff, and (3) the defendant’s claim is defensive in nature and does not seek affirmative relief. United States v. Am. Color & Chem. Corp., 858 F. Supp. 445, 451 (M.D. Pa. 1994). CARCO argues that all three elements of recoupment are met in this case, thus precluding recovery by the Government. CARCO’s argument is persuasive, except for the amount of the setoff.

First, the Government’s subrogation claim and CARCO’s defense arise out of the same transaction or occurrence—the Athos I oil spill. The Government’s subrogation claim seeks reimbursement for expenses associated with the oil spill cleanup response. Likewise, CARCO’s recoupment defense seeks to limit the Government’s reimbursement costs associated with the Athos I oil spill response. Because both the Government’s subrogation claim and CARCO’s recoupment defense arise out of the same transaction or occurrence—the Athos I oil spill—the first element of recoupment is satisfied.

Second, the Government and CARCO seek the same kind of relief; they both seek equitable relief. A statutory mandate to pay specific monies can be considered equitable relief. See Bowen v. Massachusetts, 487 U.S. 879, 893-94 (1988) (explaining that “recovery of specific

monies” may be considered specific equitable, and not monetary, relief). In regard to reimbursement under the provisions of OPA, a close analogy can be drawn from cost recovery actions under the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (“CERCLA”). Courts recognize CERCLA cost recovery actions as equitable claims. See United States v. Northeastern Pharmaceutical Chemical Co. Inc., 810 F.2d 726, 749 (8th Cir. 1986), cert. denied, 484 U.S. 848 (1987) (holding that “[w]hen the government seeks recovery of its response costs under CERCLA or its abatement costs under [the Resource Conservation and Recovery Act of 1976], it is in effect seeking equitable relief in the form of restitution or reimbursement of the costs it expended in order to respond to the health and environmental danger presented by hazardous substances”); see also Hatco Corp. v. W.R. Grace & Co. Conn., 59 F.3d 400, 412 (3d Cir. 1995) (agreeing that, in a CERCLA action, the Government was “asking for restitution of amounts that it had expended and as such was seeking a form of equitable relief.”); Tri-County Bus. Campus Joint Venture v. Clow Corp., 792 F. Supp. 984, 997 (E.D. Pa. 1992) (noting that it is well-established that CERCLA cost recovery claims are equitable in nature). In fact, at least one court has found that recovery of specific costs under OPA constitutes equitable relief. See Int'l Marine Carriers v. Oil Spill Liab. Trust Fund, 903 F. Supp. 1097, 1102 (S.D. Tex. 1994) (stating that “[r]eimbursement of OPA ‘removal costs’ from the Fund constitutes restitution, not damages.”).

Here, the Government seeks reimbursement of funds distributed to Frescati for the Athos I oil spill response. By seeking reimbursement for the cleanup, the Government is pursuing equitable relief. Similarly, CARCO is raising recoupment as an equitable defense. Like the Government, CARCO is seeking equitable relief. Therefore, this second element of recoupment is also satisfied.

Third, CARCO has raised recoupment as part of its equitable rights and defenses and does not seek affirmative relief. As noted, the Third Circuit has recognized that recoupment “seeks to diminish a claim or to defeat recovery rather than to share in it.” Folger Adam Security, Inc. v. DeMatteis/MacGregor, JV, 209 F.3d 252, 260 (3d Cir. 2000) (citing Black’s Law Dictionary 419 (6th ed. 1990)). CARCO seeks to limit the Government’s recovery, and is not seeking affirmative relief such as damages from or an injunction against the Government. Therefore, CARCO has met the third element of recoupment.

Since CARCO has shown that all three elements of recoupment exist in this case, it is entitled to seek limitation of the Government’s subrogation claim against it. In assessing recoupment as a defense, the court examines the transaction as a whole to determine whether facts in the full record warrant applying the equitable remedy.

The Government contends that it is not responsible for maintaining Federal Anchorage Number Nine. In making this argument, it references the Third Circuit Opinion, in which the court stated, “No Government entity, however, is responsible for preemptively searching all federal waters for obstructions.” In re Frescati, 718 F.3d at 194. This statement is not, however, dispositive of the situation arising here. CARCO is not contending that the Government is responsible for searching all federal waterways. This case only involves a specific situation in regard to Federal Anchorage Number Nine.

The facts in this full record present troubling aspects of the Government’s position. The Government represents in many ways that it maintains federally controlled waters, including Federal Anchorage Number Nine, through the actions of the Army Corps of Engineers, NOAA, and the Coast Guard. Among other things, the Government represents that it maintains federally controlled waterways by intermittently surveying these areas, managing all navigational markers,

and regularly notifying the maritime community of any changes to water conditions or hazards to navigation. The Government periodically surveyed Federal Anchorage Number Nine. (DePasquale Tr., 24:3-19, Mar. 19, 2015; Long Tr., 73:1-5, May 26, 2015; Rankine Tr., 26:1-9, May 27, 2015.) The Government also regularly updated the navigational charts on the Anchorage and routinely notified mariners of any known, underwater obstructions. (DePasquale Tr., 26:15-20, Mar. 19, 2015.) Facility owners and mariners alike rely on Government assertions that it monitors and cares for these federally controlled waterways.

The Government statutorily created the federal project waters over which it exercises control, including Federal Anchorage Number Nine. Congress passed the Rivers and Harbors Act of 1915, which authorized the establishment of “anchorage grounds for vessels in all harbors, rivers, bays, and other navigable waters of the United States whenever it is manifest . . . that the maritime or commercial interests of the United States require such anchorage grounds for safe navigation.” 33 U.S.C. § 471. As the Third Circuit explained, “By 1930, a ‘lack of adequate anchorage room’ was creating a hazard on the Delaware River between navigating vessels and those ‘awaiting accommodation at the wharves, or awaiting cargo or orders.’” In re Frescati, 718 F.3d at 193-94 (quoting H. Doc. No. 71-304, 24 (1930)). Therefore, the Government established Federal Anchorage Number Nine. Id. at 194 (citing Pub. L. No. 71-520, 46 Stat. 918, 921 (1930)). Today, the Anchorage “runs for approximately 2.2 miles along the Delaware River channel . . . and provides a place for ships to anchor so long as they do not ‘interfere unreasonably with the passage of other vessels to and from Mantua Creek.’” Id. (quoting 33 C.F.R. § 110.157(a)(10)). It is analogous to a parking lot, where vessels anchor and sometimes wait for other ships to pass before docking or traveling further up the Delaware River. Federal Anchorage Number Nine is a federally controlled waterway.

The Government agrees that it was responsible for controlling and maintaining Federal Anchorage Number Nine through statutes and regulations.¹¹⁵ The Corps is responsible for surveying, dredging, and maintaining the Anchorage. In fact, no dredging is permitted in the Anchorage without prior approval from the Corps. 33 U.S.C. § 403; 33 C.F.R. § 320.2(b). The Corps conducts hydrographic surveys and dredges as necessary to maintain the Anchorage's project depth of 40 feet. In re Frescati, 718 F.3d at 194; (DePasquale Tr., 24:8-14, 40:2-10, Mar. 19, 2015). On June 23, 2004, just a few months before the casualty, the Corps performed a single-beam hydrographic survey of Federal Anchorage Number Nine and shared the depth information with local mariners. (DePasquale Tr., 29:10-15, Mar. 19, 2015.) The Corps reports the results of the hydrographic surveys to the maritime community, including pilots, mariners and terminal users, and also publishes the survey results in "survey channel exams," which are

¹¹⁵ As noted, the Government is responsible for maintaining federally controlled waterways. In reference to this responsibility, 33 U.S.C. § 1 grants the Secretary of the Army the power to regulate navigable waterways. It states:

It shall be the duty of the Secretary of the Army to prescribe such regulations for the use, administration, and navigation of the navigable waters of the United States as in his judgment the public necessity may require for the protection of life and property, or of operations of the United States in channel improvement, covering all matters not specifically delegated by law to some other executive department. Such regulations shall be posted, in conspicuous and appropriate places, for the information of the public; and every person and every corporation which shall violate such regulations shall be deemed guilty of a misdemeanor and, on conviction thereof in any district court of the United States within whose territorial jurisdiction such offense may have been committed, shall be punished by a fine not exceeding \$500, or by imprisonment (in the case of a natural person) not exceeding six months, in the discretion of the court.

Any regulations prescribed by the Secretary of the Army in pursuance of this section may be enforced as provided in section 413 of this title, the provisions whereof are made applicable to the said regulations.

33 U.S.C. § 1. The Secretary of the Army has further delegated specific responsibilities to the Corps, NOAA, and the Coast Guard.

maps of the areas the Corps has surveyed, and in “channel statements,” which summarize the controlling or shallowest depths of the particular sections of the Federal Project. (Bethel Tr., 126:3-24, Mar. 17, 2015; DePasquale Tr., 26:5-27:3, Mar. 19, 2015; Ex. D-1174.) These updated maps are mailed to mariners to put them on notice of any changes. (DePasquale Tr., 26:15-20, Mar. 19, 2015.) The Corps also routinely provides its data to the Coast Guard, NOAA, the Pilots’ Association, and anyone else who asks by phone, e-mail, or at Mariners’ Advisory Committee meetings. (DePasquale Tr., 25:5-15, Mar. 19, 2015.) Additionally, the Corps marks or removes obstructions as they are reported to the Corps, and responds to requests from the Coast Guard, pilots, or private users to locate reported objects. (DePasquale Tr., 37:9-38:14, 73:13-74:8, Mar. 19, 2015; see also 33 C.F.R. § 245.10.) The Corps is authorized to remove objects that are determined to be a hazard to navigation when the owner of the object is unknown. (DePasquale Tr., 73:15-20, Mar. 19, 2015; 33 C.F.R. § 245.10.) In 2004, the Corps was equipped with single-beam, multi-beam, and side-scan sonar equipment. (DePasquale Tr., 33:14-34:3, 36:12-14, Mar. 19, 2015.)

Moreover, the Corps of Engineers makes a presentation at every Mariners’ Advisory Committee (“MAC”) meeting regarding dredging. (DePasquale Tr., 48:25-49:18, Mar. 19, 2015.) A question and answer period follows each presentation by the Corps, and attendees have the opportunity to report problems to the Corps. (DePasquale Tr., 49:24-50:9, 69:9-19, Mar. 19, 2015.) MAC meetings are attended by many constituents of the maritime community, including the Corps, the Coast Guard, NOAA, Delaware river and docking pilots, facility owners and operators, terminal representatives, the Maritime Exchange (an industry group that facilitates communication between shipping and the Government), tugboat owners and operators, the Philadelphia Regional Port Authority, and architect engineering firms. (DePasquale Tr., 48:1-17,

Mar. 19, 2015; Ratcliffe Tr., 64:1-65:1, Mar. 16, 2015; Rankine Tr., 72:6-10, May 27, 2015; see also MAC Meeting Minutes, Exs. P-748-P-751, P-753-P-756, P-759-P-760.) CARCO was a member of the local MAC and William Rankine, CARCO's Paulsboro Port Captain, attended the meetings. (Rankine Tr., 43:11-12, May 28, 2015.) Additionally, the Coast Guard makes a presentation on aids to navigation and marine safety, and NOAA makes a presentation on charting. (Rankine Tr., 73:2-25, May 27, 2015.)

NOAA is statutorily involved in surveying the Delaware River and providing information to the public. Like the Corps, NOAA conducts hydrographic surveys of the Delaware River, including Federal Anchorage Number Nine. It is primarily responsible for preparing and updating navigational charts used by mariners, which include notifications about potential obstructions to navigation. NOAA's charts provide mariners with information about water depths, and the location and depth of obstructions to navigation. NOAA's charts also show the location of aids to navigation, anchoring areas, and other navigational features. (Ex. D-1535.) Obstructions are indicated on the charts by the abbreviation "Obstn." (Ex. D-1354.) Federal Anchorage Number Nine was displayed on NOAA Chart 12313. (NOAA Nautical Chart 12313, Ex. D-1354.) NOAA also maintains an Automated Wreck Obstruction Information System ("AWOIS") database, which publishes information on the location of known or suspected submerged wrecks and obstructions. The AWOIS website includes more than 10,000 reports, and as part of its hydrographical survey duties, NOAA reviews the AWOIS reports, determines which objects warrant field investigation, and assigns those objects to NOAA survey boats for investigation.

In addition, NOAA occasionally conducts surveys of the surrounding waterways for various federal projects. In fact, in 1981, NOAA surveyed Federal Anchorage Number Nine.

(Ex. D-1517.) Additionally, in 2002, NOAA performed a hydrographic survey of the Delaware River using side-scan and multi-beam sonar. (Ex. D-1520; Ex. D-1525.) In 2004, NOAA maintained a fleet of hydrographic survey vessels that were equipped with side-scan and multi-beam sonar. (Doc. No. 555.)

Along with the Corps and NOAA, the Coast Guard is statutorily responsible for monitoring federal waterways, including Federal Anchorage Number Nine. The Coast Guard maintains all aids to navigation (buoys, lights, etc.), enforces regulations pertaining to vessels, and recommends and establishes navigable water boundaries. 33 U.S.C. § 471; 33 C.F.R. § 62.1. It is tasked with marking obstructions to navigation, including submerged structures. The Coast Guard maintains a warning communication system known as “Notice to Mariners,” which is published weekly and notifies mariners of any changes and discrepancies from the charts of navigable waterways, including shoaling and the location of newly discovered hazards to navigation. 33 C.F.R. § 72.01-10. Together, these agencies are responsible for ensuring that information concerning any changes in navigable waterways is promptly made public for the benefit of the maritime community. 33 C.F.R. § 209.325.

Collectively, these agencies represent that they maintain Federal Anchorage Number Nine.¹¹⁶ Representing to wharfingers that Government agencies are “maintaining” Federal Anchorage Number Nine can lead to the inference that the Government is insuring that the Anchorage is safe for navigation. “Maintain” or “maintenance” can be interpreted in many ways.¹¹⁷ Although the Government may view its maintenance of Federal Anchorage Number

¹¹⁶ As Captain Rankine explained in part: “The Corps of Engineers was responsible for maintaining that anchorage.” (Rankine Tr., 45:13-21, May 27, 2015.)

¹¹⁷ For example, Black’s Law Dictionary defines “maintain” in the following ways, some of which are pertinent here:

Nine as simply requiring it to conduct periodic depth surveys, dredging, and/or to remove known hazards or notify the maritime community about their presence, private wharfingers like CARCO view “maintenance” as much more. In relying on the information Government personnel from these agencies provided at the local Mariners’ Advisory Committee meetings, and in requiring CARCO to seek permits to conduct activity within the Anchorage, as Captain Rankine testified, CARCO believed that the Government was much more involved in “maintaining” Federal Anchorage Number Nine, including the handling of underwater obstructions.

The Corps and the Coast Guard are responsible for handling hazards to navigation through a coordinated wreck removal system. The relevant federal regulation establishes the general policy for removal of obstructions in navigable waterways. 33 C.F.R. § 245.10. It states:

(a) Coordination with Coast Guard. The Corps of Engineers coordinates its wreck removal program with the Coast Guard through interagency agreement, to insure a coordinated approach to the protection of federal interests in navigation and safety. Disagreements at the field level are resolved by referral to higher authority within each agency, ultimately (within the Corps of Engineers) to the Director of

1. To continue (something).
2. To continue in possession of (property, etc.).
3. To assert (a position or opinion); to uphold (a position or opinion) in argument.
4. To care for (property) for purposes of operational productivity or appearance; to engage in general repair and upkeep.

Black’s Law Dictionary 1097 (10th ed. 2014). In addition, it defines “maintenance” in a way that is, in part, relevant here:

1. The continuation of something, such as a lawsuit.
2. The continuing possession of something, such as property.
3. The assertion of a position or opinion; the act of upholding a position in argument.
4. The care and work put into property to keep it operating and productive; general repair and upkeep.
5. . . . Maintenance may end after a specified time

Id.

Civil Works, who retains the final authority to make independent determinations where Corps responsibilities and activities are affected.

(b) Owner responsibility. Primary responsibility for removal of wrecks or other obstructions lies with the owner, lessee, or operator. Where an obstruction presents a hazard to navigation which warrants removal, the District Engineer will attempt to identify the owner or other responsible party and vigorously pursue removal by that party before undertaking Corps removal.

(c) Emergency authority. Obstructions which impede or stop navigation; or pose an immediate and significant threat to life, property, or a structure that facilitates navigation; may be removed by the Corps of Engineers under the emergency authority of section 20 of the Rivers and Harbors Act of 1899, as amended.

(d) Non-emergency situations. In other than emergency situations, all reported obstructions will be evaluated jointly by the District Engineer and the Coast Guard district for impact on safe navigation and for determination of a course of action, which may include the need for removal. Obstructions which are not a hazard to general navigation will not be removed by the Corps of Engineers.

(e) Corps removal. Where removal is warranted and the responsible party cannot be identified or does not pursue removal diligently, the District Engineer may pursue removal by the Corps of Engineers under section 19 of the Rivers and Harbors Act of 1899, as amended, following procedures outlined in this CFR part.

33 C.F.R. § 245.10. The Corps, NOAA, and the Coast Guard work together in removing obstructions that pose a hazard to navigation and in alerting the public to an unsafe area. Id.

The Government relies upon the provisions of 33 C.F.R. § 245.10 for the proposition that it has no responsibility for locating obstructions. Although the regulation states that the primary responsibility for removing obstructions is on the owner, lessee, or operator of the obstruction, that regulation is silent on primary responsibility when the owner, lessee, or operator is unknown and no party is aware of the presence of the obstruction. If the Government is aware of the obstruction and the owner cannot be found, it may remove the obstruction. But this regulation does not absolve the Government from all responsibility when the owner and the obstruction are unknown, as in the case here. There is a void in the regulation, and on this full record, like

CARCO, the Government could have taken steps to locate the anchor and to have avoided the allision.

Most significantly, the Government never suggested to CARCO that private wharfingers were responsible for surveying Federal Anchorage Number Nine for obstructions. (Rankine Tr., 182:15-19, 182:23-183:18, May 26, 2015.) In fact, the Government apparently never instructs wharfingers to inspect federal anchorages for obstructions. (Rankine Tr., 77:5-13, May 27, 2015.) Therefore, before the Athos I spill, CARCO did not do a search. (Long Tr., 74:11-20, May 26, 2015; Rankine Tr., 50:24-25, May 27, 2015.)

Richard Long, who has performed single-beam hydrographic surveys for thirty-one marine terminal facilities on the Delaware River, testified that he surveyed only the permitted berth area for each terminal. (Long Tr., 13:11-22, 14:2-4, 20:1-5, 74:11-20, 141:11-142:23, May 26, 2015.) These surveys did not extend to inspect federally controlled waterways such as anchorages. (Long Tr., 14:23-15:2, May 26, 2015.) Mr. Long explained that if he needed information about a federally controlled waterway, including the controlling depths and the existence of hazards, he would contact the Corps. (Long Tr., 74:6-10, May 26, 2015.) The Government even owned side-scan sonar equipment commonly used for locating underwater obstructions. (DePasquale Tr., 36:12-37:8, Mar. 19, 2015.)

After assessing the Government's representations and actions with respect to Federal Anchorage Number Nine, the Court finds on this full record that the Government should be limited in its recovery from CARCO under the equitable principle of recoupment. Had the Government known about the anchor at the bottom of Federal Anchorage Number Nine, it would be prevented from any recovery from CARCO, because it would have knowingly failed to alert mariners to the danger. However, neither the Government nor CARCO knew of the anchor's

presence. But the Government's statutory and regulatory representations and conduct led wharfingers to believe that Federal Anchorage Number Nine was being maintained and scanned for underwater hazards by the Government. As such, the area was not searched by CARCO, creating a hazardous condition that led to the casualty at issue in this case. Therefore, based on the forgoing, the Court concludes that the Government will be limited in its recovery against CARCO.

iii. CARCO's Reimbursement to the Government Will Be Reduced By Fifty Percent.

Since both the Government and CARCO could have taken steps to locate the unknown anchor in the Federal Anchorage, and given the above findings and conclusions on equitable recoupment, the amount CARCO is required to reimburse the Government will be reduced by fifty percent (50%). The facts in this case warrant an equitable result which compels this reduction. One half of \$87,989,157.31 is \$43,994,578.66, which is the amount the Court is ordering CARCO to reimburse the Fund.

Finally, by the Court agreeing that the Government was in a position to avoid the loss for purposes of equitable recoupment, it should be clear that the Court is not finding that CARCO had no responsibility to search Federal Anchorage Number Nine for hidden obstructions. CARCO also could have done the search through side-scan sonar and, as the Court has already found, it breached the safe berth warranty to Frescati, and to the Government as a subrogee. CARCO also was negligent for failing to search and is liable to Frescati for its negligence. Moreover, the Court is not holding that the Government has an affirmative duty to search for hazards to navigation or obstructions in all federal waterways going forward. Rather, based on the facts in this case, the Court finds that the Government took actions which led CARCO to believe that the Government was maintaining Federal Anchorage Number Nine such that it

would be inequitable to hold CARCO fully responsible to reimburse the Fund for the entire amount paid to Frescati from the Fund.

For all the above reasons, the Government is limited in recovering the amount that CARCO will be reimbursing the Fund. The Court finds that, on the full record, the Government's subrogation claim against CARCO should be reduced by 50%.

iv. CARCO's Theory of Equitable Estoppel Does Not Limit the Government's Recovery.

CARCO also contends that its liability to the Government is precluded in whole or in part through the doctrine of equitable estoppel. (Doc. No. 867 at 242.) Equitable estoppel may bar or limit a claim upon a showing that a plaintiff made a material misrepresentation on which the defendant reasonably relied to its detriment. See Gibbs v. Carnival Cruise Lines, 314 F.3d 125, 128-29 (3d Cir. 2002) (explaining that “[i]n order to sustain a claim of estoppel under federal admiralty law, a party must show that it relied in good faith on a misrepresentation of another party, and that this reliance caused it to change its position for the worse.”)

CARCO alleges here that the Government misrepresented that it was maintaining and safeguarding federal project waters, including Federal Anchorage Number Nine. (Doc. No. 867 at 242.) CARCO contends that it reasonably relied on the Government's misrepresentation that it was maintaining and safeguarding Federal Anchorage Number Nine and that the misrepresentation was material. For this reason, it did not survey the Anchorage for obstructions and did not locate the anchor that caused the Athos I casualty. (Id. at 243.)

The parties dispute whether a defense of equitable estoppel raised against the Government should be treated differently than an ordinary equitable estoppel claim raised against private litigants. On one hand, CARCO asserts that by acting as a private party, the Government is subject to ordinary equitable estoppel standards. (Id. at 242.) The Ninth Circuit,

though, has noted the distinction between estoppel standards based on the Government's action as a public or private party. Santiago v. Immigration & Naturalization Service, 526 F.2d 488, 491 (9th Cir. 1975). In Santiago, the Ninth Circuit explained that affirmative misconduct will be a necessary element for estoppel whenever the government acts in its "sovereign role" for the purpose of "carrying out its unique governmental functions for the benefit of the whole public." Id. at 491 n.6 (quotation omitted). However, when the Government acts as a private party would act, "as distinguished from the sovereign, the government may be subject to equitable estoppel by the same standards applicable to private actions . . . with no affirmative misconduct requirement." American Training Servs., Inc. v. Veterans Admin., 434 F. Supp. 988, 1003 n.35 (D.N.J. 1977) (citing Santiago, 526 F.2d at 491 n.6). According to CARCO, the Government is acting as a private party in asserting a breach of contract claim as a subrogee. (Doc. No. 867 at 242.) Therefore, to succeed under an ordinary estoppel defense, CARCO would need to show simply that the Government made a material misrepresentation that CARCO relied upon to its detriment.

On the other hand, the Government asserts that an equitable estoppel defense asserted against it should be treated differently. (Doc. No. 864 at 62.) In the Third Circuit, it is well settled that the Government may not be estopped on the same terms as any other litigant. See United States v. St. John's Gen. Hosp., 875 F.2d 1064, 1069 (3d Cir. 1989) (explaining that, in addition to the ordinary elements of estoppel, "[w]hen estoppel is alleged against the United States, the defendant must also prove 'affirmative misconduct' on the part of the government."); see also United States v. Asmar, 827 F.2d 907, 912 (3d Cir. 1987) (holding that "[a] litigant must not only prove the traditional elements of estoppel, but she also must prove affirmative misconduct on the part of the government.").

In Office of Personnel Management v. Richmond, the Supreme Court declined to estop the Government, even though a federal employee provided misinformation to the plaintiff on which he relied to his detriment. 496 U.S. 414, 433-34 (1990). The Supreme Court explained, “equitable estoppel will not lie against the Government as it lies against private litigants.” Id. at 419. In so holding, the Supreme Court left open the possibility that some kind of “‘affirmative misconduct’ might give rise to estoppel against the government.” Id. at 421.

The Third Circuit has adopted this heightened burden of showing affirmative misconduct to succeed on an equitable estoppel claim against the Government. Johnson v. Guhl, 357 F.3d 403, 409-10 (3d Cir. 2004). Thus, CARCO bears the heightened burden of showing not only the traditional elements of estoppel—that the Government made a material misrepresentation that CARCO relied upon to its detriment—but also that the Government engaged in affirmative misconduct.

The Court concludes that CARCO has not met the heightened standard for equitable estoppel against the Government; therefore, this defense will not limit the Government’s subrogation claim. To reiterate, equitable estoppel will bar or limit a claim against the Government upon a showing that the Government made a material misrepresentation upon which the defendant reasonably relied to its detriment, and that the Government engaged in some affirmative misconduct in making this misrepresentation. Asmar, 827 F.2d at 912.

In this case, CARCO has not met its burden of establishing equitable estoppel for several reasons. First, the Government did not make a material misrepresentation to CARCO.¹¹⁸ The Government, by its actions, raised the inference that it maintained Federal Anchorage Number Nine. But the Government never said that it would search for obstructions as part of that

¹¹⁸ For this reason, even if the heightened standard did not apply here, equitable estoppel has not been established.

maintenance. There is no evidence that Government agents from the Corps, NOAA, or the Coast Guard specifically told CARCO that it was surveying the Anchorage for obstructions. At best, CARCO was operating under the assumption that the Government searched for hidden obstructions in the Anchorage.

Second, the Government did not engage in affirmative misconduct. It never affirmed that it would search the Anchorage for obstructions. Although its conduct here could have led CARCO to believe that it did so, there is no evidence that Government regulatory personnel engaged in misconduct. For these reasons, CARCO's defense of equitable estoppel is unavailing.

v. CARCO's Theory of Unjust Enrichment Does Not Limit the Government's Recovery.

CARCO alleges that the Government would be unjustly enriched if it were able to collect the nearly \$88 million in cleanup expenses it reimbursed Frescati. (Doc. No. 867 at 245.) Because CARCO paid into the Fund over \$103 million in taxes on imported barrels of oil, it argues that the Government is not entitled to collect an additional \$88 million. CARCO contends that any reimbursement would amount to unjust enrichment.

Under federal admiralty law, a party may bring a claim for unjust enrichment. See, e.g., Archawski v. Hanioti, 350 U.S. 532, 536 (1956). “A person who is unjustly enriched at the expense of another is subject to liability in restitution.” Restatement (Third) of Restitution and Unjust Enrichment § 1 (2011). Unjust enrichment is found where “a benefit [is] obtained from another, not intended as a gift and not legally justifiable, for which the beneficiary must make restitution or recompense.” Black’s Law Dictionary 1771 (10th ed. 2014). As explained in Enslin v. The Coca-Cola Co.,

Terms such as “inequitable” or “unjust” may suggest a deceptively malleable conception of the law, but the extent to which the law of restitution will “interven[e] in transactions that might be challenged as inequitable is narrower,

more predictable, and more objectively determined than the unconstrained implications of the words ‘unjust enrichment.’”

136 F. Supp. 3d 654, 676 (E.D. Pa. 2015) (quoting Restatement (Third) of Restitution and Unjust Enrichment § 1 cmt. b (2011)). The concern is not “with unjust enrichment in any such broad sense, but with a narrower set of circumstances giving rise to what might more appropriately be called unjustified enrichment.” Restatement (Third) of Restitution and Unjust Enrichment § 1 cmt. b (2011). The heart of such a claim is the “transfer of a benefit without adequate legal ground.” See id.; see also Gulf Oil Trading Co. v. Creole Supply, 596 F.2d 515, 520-21 (2d Cir. 1979) (finding unjust enrichment where the creditor of a vessel facing foreclosure allowed Gulf Oil to supply fuel for a ship to sail to the Bahamas purely for the purpose of foreclosure proceedings, without compensating Gulf Oil for the cost of the fuel).

As noted, CARCO claims that the Government will be unjustly enriched if CARCO is required to reimburse the Government the nearly \$88 million because it has already paid to the Fund over \$103 million in taxes on imported oil. This argument misconstrues how the Fund works. Congress has provided that the Fund collects income in several ways. First, the Fund collects income through a per-barrel tax on oil. 26 U.S.C. § 9509(b)(1). Second, it receives income through recovery under OPA for damages to natural resources. 26 U.S.C. § 9509(b)(2). Third, the Fund collects income by pursuing removal costs as a statutory subrogee of a claimant of the Fund. 26 U.S.C. § 9509(b)(3). Thus, the Government has a legal basis, under 26 U.S.C. § 9509(b), to receive income from one party both for a per-barrel tax on imported oil and for any claims it pursues as a statutory subrogee. Because the Government is permitted to receive reimbursement from CARCO pursuant to this latter ground, CARCO’s unjust enrichment defense is without merit.

V. DAMAGES

There are four components of Frescati's damages claim: (1) damages for six categories of claims made by Frescati and the date and amount of three principal reductions; (2) the rate of prejudgment interest; (3) the start date for accrual of interest; and (4) whether the interest is compounded.

A. Frescati Is Entitled Under Contract and Tort Law to All Damages Caused by the Incident.

Because CARCO breached its safe berth warranty and was negligent in maintaining the approach to its berth, Frescati is entitled to a total of \$55,497,375.95 in damages under both contract and tort law. “The damage rule in admiralty cases generally does not differ from ordinary contract rules.” M. Golodetz Exp. Corp. v. S/S Lake Anja, 751 F.2d 1103, 1112 (2d Cir. 1985). In addition, “[t]he elements of a maritime negligence cause of action are essentially the same as land-based negligence under the common law.” 1 Schoenbaum, supra, § 5-2, at 252. “When necessary, relevant state law may be used to fill in gaps in general maritime law.” Am. S.S. Co. v. Hallett Dock Co., 862 F. Supp. 2d 919, 930 (D. Minn. 2012).

The Court of Appeals has made clear that “a negligent defendant is liable for all the general harms he foreseeably risked by his negligent conduct and to the class of persons he put at risk by that conduct.” In re Frescati, 718 F.3d at 212 (quoting 1 Dan B. Dobbs et al., The Law of Torts, § 198, at 682-83 (2d ed. 2011)). Moreover, all “harm proximately caused by negligent actions of a defendant is compensable.” Nat'l Steel Corp. v. Great Lakes Towing Co., 574 F.2d 339, 342 (6th Cir. 1978). Generally, “damages for negligent injury to property are assessed according to the principle that such damages serve a compensatory function and must be tailored to place the aggrieved party in as good a position as [it] was before the accident.” 1 Schoenbaum, supra § 5-16, at 316. Likewise, in breach of contract cases, the logic is to “place the innocent

party in the position in which [it] would have been if the contract had been fully performed. The award of contract damages is intended to give the non-breaching party the benefit of its bargain.”

In re Am. Shipyard Corp., 220 B.R. 734, 737 (Bankr. D.R.I. 1998) (internal quotation marks and citations omitted), aff’d No. RI 98-032, 1999 WL 35128694 (B.A.P. 1st Cir. 1999). Because this Court has found that CARCO breached its safe berth warranty and that its negligence proximately caused the allision, Frescati is entitled to damages to compensate it for its losses.

B. Frescati Has Carried its Burden of Proving All Damages.

Frescati has met its burden of proving that it is entitled to an award of damages in the amount of \$55,497,375.95. Frescati had the burden to prove the amount of its damages to a reasonable degree of certainty. ConAgra, Inc. v. Inland River Towing Co., 252 F.3d 979, 985 (8th Cir. 2001). It was required to establish reasonably precise figures without relying on speculation. In re Am. Shipyard Corp., 220 B.R. at 737. Convincing evidence documenting the damages has been presented and credible witnesses testified to the expenses incurred. These damages were a result of CARCO’s breach of warranty and negligence.

Donna Hellberg, the Lead Claims Manager for the National Pollution Funds Center (“NPFC”), testified that in the course of adjudicating this claim, the documents she reviewed were “probably in excess of 5 feet, truthfully, in magnitude” (Hellberg Tr., 134:7-9, Mar. 24, 2015), and “[Frescati] supplied in excess of 53,000 pages of documentation” (Hellberg Tr., 87:6-12, Mar. 24, 2015). Ms. Hellberg stated, “I determined that they were entitled to recover approximately [\$]88 million over and above their limitation of liability, which was [\$]45.4 million.” (Hellberg Tr., 64:18-20, Mar. 24, 2015.)

In addition to the testimony of Donna Hellberg and the documentation, through the testimony of Ben Benson, the Qualified Individual under the Athos I’s vessel response plan, and

Roger LaFerriere, the Commanding Officer of the Coast Guard Atlantic Strike Team, Frescati has shown that its damages claim is reasonable and precise. On this record, Frescati also has proven with precision the reasonableness of the damages of nearly \$88 million, which the Government seeks to recover as a subrogee, but which has been reduced by the Court, and the balance Frescati claims that CARCO is liable to pay.

C. Damage Categories

Frescati is entitled to damages totaling \$55,497,375.95 for its losses. The damages fall into the following six categories, as discussed below.

i. OPA Removal Costs

First, Frescati is entitled to damages in the amount of \$45,317,511 for the cost to clean up the oil, or “removal costs” as required by OPA, 33 U.S.C. § 2701(31) (2013). As stated in the Findings of Fact, Frescati was able to limit its liability to this amount pursuant to 33 U.S.C. § 2704. As a result, the NPFC reimbursed Frescati \$87,989,157.31, and the United States Government became subrogated to Frescati’s claim against CARCO for that amount. Additionally, Frescati was able to reduce its OPA removal damages by \$156,489 by selling equipment it used for the cleanup. Thus, after the NPFC’s reimbursement and the sale of cleanup equipment, Frescati is entitled to \$45,317,511 for its OPA removal costs. (Ex. P-1419.)

ii. Non-OPA Response Costs

Frescati is entitled to \$1,541,597.79 for expenditures made in the course of its response to the spill, which the NPFC deemed not “OPA compensable.” These expenses included costs incurred to manage third-party claims, to decontaminate recreational boats oiled by the spill, and to remove the anchor and pump casing from the riverbed. These were reasonable expenses actually incurred as a direct consequence of the incident, and are recoverable.

iii. Settlement of Salem Nuclear Power Plant Claim

Additionally, Frescati is entitled to damages in the amount of \$1,500,000 to recover the amount it paid to settle the claim of the Salem Nuclear Power Plant. (Ex. P-1422 at ATHOS 78119.1-78128, 78232, 78424.) Frescati may recover from CARCO indemnity for settlement with this third party claimant if it shows: (1) potential liability to a third party; (2) that “the settlement is reasonable”; and (3) that “the indemnitor has sufficient notice in which to object to the settlement terms.” Atl. Richfield Co. v. Interstate Oil Transp. Co., 784 F.2d 106, 112 (2d Cir. 1986). Frescati was not required to “establish that it was in fact liable to the claimant so long as the claimant’s injury . . . and potential liability on the facts known to the ship are shown to exist, culminating in a settlement in an amount reasonable in view of the size of possible recovery and degree of probability of claimant’s success against the ship.” Damanti v. A/S Inger, 314 F.2d 395, 397 (2d Cir. 1963).

Frescati established all of the necessary elements to warrant recovery. The Salem Nuclear Power Plant initially submitted claims to the NPFC for lost profits and other costs incurred due to the emergency shutdown of reactors when oil from the spill appeared in the Plant’s water supply intakes. Frescati’s witness, Roger LaFerriere, the Commanding Officer of the Coast Guard Atlantic Strike Team, testified that the Salem Nuclear Power Plant had to be shut down for several days, which created serious concerns for Southern New Jersey in obtaining energy. (LaFerriere Tr., 16:4-8, Mar. 23, 2015.)

As a result, the NPFC adjudicated and settled the power plant’s claims for \$33,125,017.17, not including interest. Subsequently, in November 2008, the Salem Nuclear Power Plant asserted a claim against Frescati for \$4,695,950.87, representing the interest that the NFCP had not paid because the NPFC is not statutorily obligated to pay interest on its claim

awards. On March 27, 2009, Frescati tendered the defense of the claim to CARCO, but on May 28, 2009, CARCO rejected the tender offer, leaving Frescati to resolve the claim itself. (Ex. P-1422.) In October 2009, Frescati settled this interest claim for \$1,500,000 in exchange for a complete release for itself and CARCO. The settlement was reasonable, and CARCO was given the opportunity to defend or resolve the claim. Therefore, Frescati is entitled to \$1,500,000 in damages for its settlement with the Salem Nuclear Power Plant.

iv. Unrepaired Hull Damages

Frescati is entitled to damages in the amount of \$438,542.25 for the estimated cost of repairs to the vessel's hull that were never completed. Indeed, "vessel repairs are not a prerequisite to an award for physical damages caused by a collision." Yarmouth Sea Prod. Ltd. v. Scully, 131 F.3d 389, 399 (4th Cir. 1997) (internal quotation marks omitted). Consequently, "[d]amages in collision cases, where the repairs are not made, can be measured either by estimated cost of repairs at a time immediately following the accident, . . . or by the diminution in the market value of the vessel." United States v. Shipowners & Merchs. Tugboat Co., 103 F. Supp. 152, 153 (N.D. Cal. 1952), aff'd 205 F.2d 352 (9th Cir. 1953).

Here, the Court finds that Frescati is entitled to the estimated cost of repairs of the ship's hull in the amount of \$438,542.25. (Doc. No. 518; Ex. P-1417.) As stated in the Findings of Fact, Frescati was unable to repair damages to certain hull plates at the Mobile, Alabama dry dock because the dry dock facility did not have the proper accommodations to perform the repair work. However, Frescati was not required to repair the vessel hull to be awarded damages on the estimated cost of repairs. Therefore, Frescati is entitled to damages in the amount of \$438,542.25 for the estimated cost of the unrepaired hull damage.

v. Damages for Vessel and Miscellaneous Port Expenses

Next, Frescati has carried its burden of proving \$50,642.01 in damages for vessel and miscellaneous port expenses. (Exs. P-1415; P-1416; P-1429.) As stated in the Findings of Fact, between November 26, 2004 and February 3, 2005, Frescati incurred \$15,796 in damages to supply the vessel with stern tube oil and stores during detention. Frescati also incurred \$34,846.01 for BMT Salvage's marine survey and salvage work related to the casualty. CARCO did not contest the amount of either of these expenses. Thus, in total, Frescati is entitled to \$50,642.01 for vessel damages and miscellaneous port expenses. (Exs. P-1415; P-1416; P-1429.)

vi. Stipulated Damages

In the category of Stipulated Damages, Frescati is entitled to damages in the amount of \$6,649,082.90. As previously noted, Frescati and CARCO have stipulated to the amount of the final three expenses: Hull Damage,¹¹⁹ Loss of Hire,¹²⁰ and Natural Resource Damage Assessment¹²¹ in the amount of \$6,649,082.90. (Stipulations of the Parties, Doc. Nos. 518, 526.) Frescati is entitled to the total amount of these damages.

¹¹⁹ Frescati seeks to recover \$3,925,585.11 under the category of Hull Damage for costs it incurred to find and remove the anchor, to repair the Athos I temporarily to facilitate the move from the Port of Philadelphia to a dry dock in Mobile, Alabama, and, subsequently, to permanently repair the hull plates damaged by the anchor in the approach to CARCO's berth. (Doc. No. 863 ¶ 30.)

¹²⁰ Frescati also asserts that it is entitled to damages in the amount of \$2,100,000 for loss of hire to compensate it for its lost earnings while the Athos I was out of use and awaiting repairs. (Id. ¶ 32.)

¹²¹ Finally, in the Natural Resource Damage Assessment category, Frescati seeks to recover \$623,497.79 for costs it incurred during the early months of the oil spill cleanup from working with the United States Fish & Wildlife Service and other federal and state Trustees to make a preliminary evaluation of the natural resource damage the oil spill caused. (Id. ¶ 34.)

D. CARCO Has Not Proven the Affirmative Defense of Failure to Mitigate Damages.

CARCO did not carry its burden of proving the affirmative defense that Frescati failed to mitigate its damages. “Once a plaintiff proves its damages, a defendant has the burden to show the damages award should be limited because the plaintiff failed to take reasonable measures to mitigate its loss.” Vici Racing LLC v. T-Mobile USA, Inc., 763 F.3d 273, 300 (3d Cir. 2014). To prove that the costs were unreasonable, CARCO must demonstrate that Frescati’s decisions in incurring costs were “palpably erroneous.” BP Exploration & Oil, Inc. v. Moran Mid-Atl. Corp., 147 F. Supp. 2d 333, 344 (D.N.J. 2001) (citing Ellerman Lines Ltd. v. The President Harding, 288 F.2d 288, 291 (2d Cir. 1961)).

To be sure, “‘reasonableness’ here does not require ‘infallibility or exactness of mathematical formula.’” Nat’l Liab. Fire Ins. Co. v. R&R Marine, Inc., 756 F.3d 825, 833 (5th Cir. 2014) (citation omitted). Instead, “[r]easonable conduct ‘is to be determined from all the facts and circumstances of each case, and must be judged in the light of one viewing the situation at the time the problem was presented.’” Toyota Indus. Trucks U.S.A. v. Citizens Nat’l Bank of Evans City, 611 F.2d 465, 471 (3d Cir. 1979) (citation omitted).

The Court “‘will allow [Frescati] a wide latitude in determining how best to deal with the situation’ because ‘the necessity of decision-making was thrust upon [it] by the defendant, and judgments made at the time of crisis are subject to human error.’” Nat’l Liab. Fire Ins. Co., 756 F.3d at 833 (citation omitted). Indeed, Frescati was not required to contract with the least expensive contractor for it to exercise reasonable and sensible business judgment. Under the circumstances, it is “the exercise of prudent business judgment and in no way unreasonable conduct for [a plaintiff] to have awarded the contract at somewhat increased cost to one whose

performance had on previous occasions proved satisfactory.” In re Kellett Aircraft Corp., 186 F.2d 197, 199-200 (3d Cir. 1950).

Here, Frescati was faced in its cleanup efforts with unique and challenging circumstances, including the time of year that the incident occurred, the nature of the Delaware River, and the sheer magnitude of the spill itself. Frescati was compelled to make difficult business judgments with respect to equipment, personnel, organization, and process. For example, Mr. Benson testified that he had approximately 1,800 individuals working in response to this incident. He continued, “And you stand 1,800 people up within a five-day period, you are actually building a company and you have to manage that as a company. You have to use sound business principles when it comes to operations, planning, logistics, and more importantly the finance aspects of that.” (Benson Tr., 193:17-22, Mar. 23, 2015.) In addition, Mr. LaFerriere stated, “So this spill, in particular, is the one I’m the most proud of. This spill had the best use of the incident command system I have seen in all the spills I have been involved in.” (LaFerriere Tr., 81:7-10, Mar. 23, 2015.)

Frescati was not required to take on the risk of potential liability or added expenses by attempting to reduce its damages. Tenn. Valley Sand & Gravel Co. v. M/V Delta, 598 F.2d 930, 935 (5th Cir. 1979). Frescati faced the threat of early “federalization” should it not carry out its functions efficiently as required by OPA. Mr. Benson stated, “if we fail[ed] in any component . . . if we fail[ed] to support our contractors and the contractors fail[ed] to perform in the field with fear of not being paid, for example, the Coast Guard ha[d] full authority to step in and federalize that component of the spill.” (Benson Tr., 144:10-15, Mar. 23, 2015.) Mr. Benson further explained, “if the Coast Guard was to intercede and federalize the spill, costs are going to rise dramatically. And . . . it could be punitive to the course of treble damages overall.”

(Benson Tr., 144:24-145:3, Mar. 23, 2015.) Frescati was not required to take action that created a risk that contractors would fail to perform, which could result in federalization of portions of the spill response. Moreover, when the response transitioned from the emergency phase into the project phase, Mr. Benson was able to look ahead beyond the next day, and was able to renegotiate contracts and cut costs for the remaining cleanup efforts. (Benson Tr., 214:24-215:6, 215:9-14, 216:4-11, 216:16-217:7, Mar. 23, 2015.) Considering all of these circumstances, Frescati's actions in the face of this crisis were reasonable, and it acted appropriately to mitigate its damages. Aircraft Guar. Corp. v. Strato-Lift, Inc., 991 F. Supp. 735, 739 (E.D. Pa. 1998).

E. Prejudgment Interest

Frescati is entitled to an award of prejudgment interest at the United States one-year Treasury Rate, set in 28 U.S.C. § 1961(a), while the Government is entitled to prejudgment interest at the rate set in OPA, 33 U.S.C. § 2705(b)(4), to which the Government and CARCO stipulated. “The rule in admiralty is that prejudgment interest should be awarded unless there are exceptional circumstances that would make such an award inequitable.” In re Bankers Trust Co., 658 F.2d 103, 108 (3d Cir. 1981). Put another way, it is well settled in admiralty that prejudgment interest is awarded “subject to a limited exception for ‘peculiar’ or ‘exceptional’ circumstances.” City of Milwaukee v. Cement Div., Nat'l Gypsum Co., 515 U.S. 189, 195 (1995). Indeed, “[u]nder maritime law, the awarding of prejudgment interest is the rule rather than the exception, and, in practice, is well-nigh automatic.” United States Fire Ins. Co. v. Allied Towing Corp., 966 F.2d 820, 828 (4th Cir. 1992) (quoting Reeled Tubing, Inc. v. M/V Chad G., 794 F.2d 1026, 1028 (5th Cir. 1986)).

Prejudgment interest should be awarded unless exceptional circumstances exist that would make the award inequitable. Exceptional circumstances exist when the party requesting

the interest “has (1) unreasonably delayed in prosecuting its claim, (2) made a bad faith estimate of its damages that precluded settlement, or (3) not sustained any actual damages.” Del. River & Bay Auth. v. Kopacz, 584 F.3d 622, 634 (3d Cir. 2009) (quoting In re Bankers Trust Co., 658 F.2d at 108).

Moreover, prejudgment interest is considered part and parcel of the damages award, and “must be compensatory rather than punitive.” Kopacz, 584 F.3d at 634. It compensates the plaintiff for the defendant’s use of the funds from the date of the injury to the date of judgment. Reeled Tubing, Inc. v. M/V Chad G, 794 F.2d 1026, 1028 (5th Cir. 1986). Those “who finance their own cleanup lend to themselves” and “are entitled to compensation for the ‘hire’ of this capital.” Matter of Oil Spill by Amoco Cadiz, 954 F.2d 1279, 1331 (7th Cir. 1992).

CARCO argues that Frescati is not entitled to prejudgment interest because it unreasonably delayed resolving this matter by requesting a stay of litigation from 2005 to 2008 while it pursued limitation and recovery from the Oil Spill Liability Trust Fund. (Doc. No. 856 at 31.) CARCO maintains that this Court should deny prejudgment interest when a plaintiff unreasonably delayed the pursuit of its claim or delayed resolving the case. See Wilburn v. Maritrans G.P., Inc., 2000 WL 4144, at *2 (E.D. Pa. Jan. 3, 2000); Jones v. Spentonbush-Red Star Co., 155 F.3d 587, 593-94 (2d Cir. 1998).

In Wilburn, the court found that the plaintiff had unreasonably delayed litigation by failing to take steps to advance its claim after the court had listed the matter for trial and for its conduct during discovery. 2000 WL 4144, at *2. As a result, the trial was unreasonably delayed. Id. Here, Frescati moved to stay two counts in its Amended Counterclaim, Counts VIII and X, and the Court (Fullam, J.) granted the motion to stay these two counts in a Memorandum and Order dated January 5, 2006. (Doc. No. 84.) The stayed counts were in relation to Frescati’s

OPA Removal and Non-OPA Response cost damages categories, and not in relation to any other category of damage or liability. (*Id.*; Doc. No. 862 at 86.) The remainder of the litigation and discovery continued during the time the stay was in effect. During the stay, Frescati's costs in the OPA Removal and Non-OPA Response categories were presented to the NPFC for review and adjudication. (Doc. No. 862 at 86.) The stay was required because the NPFC will not review a reimbursement submission while the matter is pending in another forum. (*Id.*) Therefore, Frescati did not unreasonably delay the litigation and is entitled to prejudgment interest on its damages.

Frescati is entitled to interest on all damages it incurred as a result of the casualty. Frescati, however, is not seeking an award of prejudgment interest on the category of Unrepaired Hull Damage because it did not actually incur that expense. (Doc. No. 863 ¶ 243.) As such, Frescati is entitled to prejudgment interest on all damages categories except the category of Unrepaired Hull Damage.

No exceptional circumstances existed that would make the award of interest inequitable. Frescati has not “(1) unreasonably delayed in prosecuting its claim, (2) made a bad faith estimate of its damages that precluded settlement, or (3) not sustained any actual damages.” Kopacz, 584 F.3d at 634 (quoting In re Bankers Trust Co., 658 F.2d at 108). To be fully compensated, Frescati is entitled to interest on its costs and damages and the Government is entitled to interest on the amount to be reimbursed to the Fund.

i. Frescati Is Entitled to Prejudgment Interest at the United States One-Year Treasury Rate Set in 28 U.S.C. § 1961(a).

Frescati is entitled to prejudgment interest at the United States one-year Treasury Rate, specified in 28 U.S.C. § 1961(a).¹²² “The rate of prejudgment interest to be applied in admiralty . . . is left to the sound discretion of the district court.” BP Exploration & Oil, Inc. v. Moran Mid-Atl. Corp., 147 F. Supp. 2d 333, 347 (D.N.J. 2001); see also In Matter of Complaint of Tug Beverly Inc., 1994 WL 194891, at *1 (E.D. Pa. May 13, 1994). As explained in 28 U.S.C. § 1961(a): “Such interest shall be calculated from the date of the entry of the judgment, at a rate equal to the weekly average 1-year constant maturity Treasury yield, as published by the Board of Governors of the Federal Reserve System, for the calendar week preceding[] the date of the judgment.” Because the prejudgment interest rate specified in 28 U.S.C. § 1961(a) will fairly and adequately compensate Frescati for its losses, this rate will be applied here.

In the maritime property damage case Pillsbury Co. v. Midland Enterprises, Inc., the court found that prejudgment interest awarded at the rate specified in 28 U.S.C. § 1961 was appropriate because the plaintiff introduced no evidence that it had actually borrowed and incurred high interest costs. 715 F. Supp. 738, 770-71 (E.D. La. 1989), aff’d and remanded, 904 F.2d 317 (5th Cir. 1990). The court explained:

The rate at which prejudgment interest is awarded is within the trial court’s “broad discretion.” The Fifth Circuit has upheld awards at the Louisiana legal rate, at the federal legal rate, as well as at, among other rates, higher rates roughly equal to the plaintiff’s actual cost of borrowing. In cases where there was no evidence that the plaintiff had actually borrowed money and incurred higher interest costs, the Fifth Circuit has uniformly rejected plaintiffs’ argument that

¹²² In lieu of interest under 28 U.S.C. § 1961(a), CARCO has suggested that the Court award Frescati prejudgment interest at the OPA rate specified in 33 U.S.C. § 2705(b)(4) or the London Interbank Offered Rate (“LIBOR”) plus 0.5%. (Doc. No. 858 at 13-15.) Neither the OPA rate, the LIBOR plus 0.5% rate, nor the United States Prime Rate would be appropriate rates to use here because no evidence was presented that the entity that paid for the cleanup borrowed funds at any of these rates.

they should have been awarded prejudgment [interest] at the generally higher cost-of-borrowing rate. . . .

In this case, plaintiffs have introduced no evidence that they borrowed money, or were prevented from paying off loans, because of this action. . . .

. . .

In the exercise of its discretion, the Court determines that prejudgment interest should be awarded from the date of the casualty . . . at the current rate provided for in 28 U.S.C. § 1961 (viz., 8.85% compounded annually).

Id. (footnotes omitted). Here, as in the Pillsbury Co. case, this Court has been presented with no definite evidence that the entity that ultimately paid for the cleanup and associated expenses borrowed money to cover the costs. The record does not definitively reflect whether Frescati or a P&I Club paid for the cleanup and associated costs beyond the amount that the Government reimbursed Frescati from the Fund. Furthermore, “the measure of interest rates prescribed for post-judgment interest in 28 U.S.C. § 1961(a) is also appropriate for fixing the rate for prejudgment interest.” Price v. Stevedoring Servs. of Am., Inc., 697 F.3d 820, 836 (9th Cir. 2012) (quoting W. Pac. Fisheries, Inc. v. SS President Grant, 730 F.2d 1280, 1289 (9th Cir. 1984)).

The interest rate specified in 28 U.S.C. § 1961(a) may be awarded as prejudgment interest in cases where the court does not find, “on substantial evidence, that the equities of a particular case require a different rate.” W. Pac. Fisheries, Inc., 730 F.2d at 1289; see also Sun Ship, Inc. v. Matson Nav. Co., 785 F.2d 59, 63 (3d Cir. 1986) (stating that the prejudgment interest rate is within the discretion of the court, remanding for finding of prejudgment interest, and stating that on remand, the trial court may be guided by 28 U.S.C. § 1961). Here, the evidence has failed to show that the equities require a different prejudgment interest rate, because, as noted, neither Frescati nor CARCO offered firm evidence of who ultimately paid for the expenses and whether funds had to be borrowed to do so.

Accordingly, the interest rate specified in 28 U.S.C. § 1961(a) is a reasonable guidepost and a more appropriate rate than any other rate advocated by the parties. Based on the foregoing, Frescati is entitled to prejudgment interest, which will be awarded at the United States one-year Treasury Rate set in 28 U.S.C. § 1961(a).

ii. Prejudgment Interest on the Government's Subrogation Claim Is Awarded at the Stipulated Rate Set in 33 U.S.C. § 2705(b)(4).

The Government is entitled to prejudgment interest on its limited subrogation damages at the rate specified in OPA, 33 U.S.C. § 2705(b)(4), because this is the rate to which the Government and CARCO have stipulated. (Doc. No. 492.) As such, CARCO will owe the Government prejudgment interest on \$43,994,578.66. Section 2705(b)(4) provides that interest "shall be calculated at the average of the highest rate for commercial and finance company paper of maturities of 180 days or less obtaining on each of the days included within the period for which interest must be paid to the claimant, as published in the Federal Reserve Bulletin." 33 U.S.C. § 2705(b)(4). Because the parties have stipulated to this interest rate, prejudgment interest will be awarded to the Government at this rate.

iii. Period of Accrual for Prejudgment Interest

The appropriate period of accrual for prejudgment interest is from April 1, 2005 to the date of judgment on the monies awarded by the Court. "Prejudgment interest begins to run from the date the damaged party loses the use of its funds, e.g., from the time expenditures were actually made." BP Exploration & Oil, Inc., 147 F. Supp. 2d at 346. Frescati proposed April 1, 2005 as the appropriate start date for the computation of prejudgment interest, and CARCO's expert, Dr. Boudreux, accepted this date as the approximate start date. (Boudreux Tr., 26:21, Apr. 9, 2015.) This period of accrual also includes three principal adjustments: (1) from August 23, 2006 on \$77,181,859.54, when the Fund reimbursed Frescati; (2) from June 17, 2008 on

\$10,807,297.77, when the Fund reimbursed Frescati a second time; and (3) from September 6, 2005 on \$156,489, when Frescati finalized the post-incident sale of equipment. (Boudreax Tr., 55:9-19, Apr. 9, 2015; Ex. D-2400.)

CARCO argues that Frescati is not entitled to prejudgment interest because it delayed the litigation three years by moving to stay the case in 2005 to assert a claim for limitation and recovery from the NPFC. (Doc. No. 858 ¶ 33.) The Court has already found this argument to be without merit. Thus, with the exceptions noted, the appropriate period of accrual for prejudgment interest is from April 1, 2005 to the date of this judgment.

iv. Annual Compounding of Interest

Annual compounding is a reasonable and appropriate computation factor for Frescati's prejudgment interest. 28 U.S.C. § 1961(b) provides, "Interest shall be computed daily to the date of payment . . . and shall be compounded annually." 28 U.S.C. § 1961(b). See also Pillsbury, 715 F. Supp. at 771 (compounding prejudgment interest at the rate provided for in 28 U.S.C. § 1961 annually); Adriatic Ship Supply Co. v. M/V Shaula, 632 F. Supp. 1573, 1576 n.4 (E.D. Pa. 1986) (awarding prejudgment interest at the 28 U.S.C. § 1961 rate and compounding interest annually). Accordingly, annual compounding will be used to determine Frescati's prejudgment interest.¹²³

VI. CONCLUSION

This litigation involves an attempt by three parties to apportion monetary liability for the Athos I casualty. The first party includes the owner of the Athos I, Frescati Shipping Company, Ltd., and its vessel manager, Tsakos Shipping & Trading, S.A. ("Frescati"). Frescati alleges that

¹²³ Since the Government and CARCO have agreed that prejudgment interest on the subrogation claim will be calculated based on the rate specified in 33 U.S.C. § 2705(b)(4), there is no need for the Court to decide if the interest should be compounded.

it incurred more than \$143 million in expenses from oil spill cleanup efforts and in damages. The second party is the United States Government, which reimbursed Frescati \$87,989,157.31 pursuant to the provisions of OPA. Both Frescati and the Government seek reimbursement for their costs from the third party to this litigation—entities known as CITGO Asphalt Refining Company, CITGO Petroleum Corporation, and CITGO East Coast Oil Corporation (together referred to as “CARCO”). CARCO contracted to have the Athos I deliver crude oil to its refinery in Paulsboro, New Jersey.

Frescati brought a contract action against CARCO for breaching the safe berth warranty included in the contract that CARCO made with Star Tankers, Inc., the intermediary that chartered to CARCO the Athos I for delivery of oil to its Paulsboro berth. Frescati is covered by the safe berth warranty as a third-party beneficiary. The safe berth warranty was an express assurance that the Athos I would reach the Paulsboro berth safely, provided that it maintained a draft of 37 feet or less. The record demonstrates that the Athos I was drawing less than 37 feet at the time of the casualty. This Court finds that CARCO breached the safe berth warranty. This Court also finds that Frescati did not negate the safe berth warranty through poor navigation or seamanship. As a result, CARCO is liable to Frescati on the breach of contract claim in the amount of \$55,497,375.95 for cleanup costs and damages, plus prejudgment interest. Prejudgment interest will be calculated at the rate set in 28 U.S.C. § 1961(a) and compounded annually.

The Government, as a statutory subrogee, has entered into a partial settlement agreement with CARCO, limiting its claim for reimbursement from CARCO to Frescati’s contractual claim under the safe berth warranty. The Government does not have a negligence claim against CARCO. As a statutory subrogee, the Government stands in the shoes of Frescati on the breach

of contract claim. The evidence warrants, however, an equitable finding that CARCO is not fully liable to the Government on the \$87,989,157.31 subrogation claim. The Government may only recover on this claim 50% of the \$87,989,157.31, or \$43,994,578.66, plus prejudgment interest. Prejudgment interest will be awarded at the rate set in 33 U.S.C. § 2705(b)(4).

In addition to the breach of contract claim, Frescati brought a negligence claim against CARCO. The Third Circuit has held that CARCO had a duty to exercise reasonable diligence in maintaining a safe approach to its Paulsboro berth for the Athos I. To fulfill this duty, the standard of care required CARCO under the facts of this case to periodically scan the approach to its dock to search for hazards to navigation. In addition, if CARCO found a hazard, CARCO was required to either remove it, mark it, or warn incoming ships of its presence. CARCO breached this duty by failing to conduct side-scan sonar surveys of the approach. This failure to search for underwater hazards within the approach proximately caused the casualty. Had CARCO searched for underwater obstructions within the approach, the anchor would have been discovered and the oil spill would not have occurred. Therefore, CARCO was negligent and is liable to Frescati on this claim in the amount of \$55,497,375.95 for cleanup costs and damages, plus prejudgment interest compounded annually.

CARCO contends that Frescati's conduct contributed to the casualty because the Athos I crew negligently navigated the vessel and the vessel was unseaworthy. No credible evidence shows that any poor navigation or seamanship proximately caused or contributed to the casualty, or that the Athos I was unseaworthy. Moreover, the Pennsylvania Rule does not limit Frescati's recovery.

The amount of \$55,497,375.95 is being awarded to Frescati on both the breach of warranty and negligence claims. Frescati is being awarded the \$55,497,375.95 independently on each count, but is entitled to a total award only in this amount.

Over the past twelve years, this litigation has generated about seventy (70) days of testimony plus numerous days of other proceedings and appeals; the devoted commitment of an army of lawyers and experts from the Government and the private sector; and the study of vast amounts of information to uncover the cause of, and culpability for, the allision. At some point, the Athos I was scrapped. Its only remnant, a cut-out section of the hull displaying two unique holes with jagged edges, remains in a shed in Baltimore, Maryland, near a rusted anchor with a fluke that has an evenly curled bent tip. The story of the final voyage of the Athos I and the reasons why it came to rest prematurely may be in the minds of the maritime community for years to come. But in this Court, for now, its legal journey will conclude here.

Appropriate Orders follow.

Exhibit A

Depiction: Aerial photograph of a portion of the
Mantua Anchorage showing channel
boundaries and the locations of various
targets located with side scan sonar

AMERICAN UNDERWATER SEARCH & SURVEY, LTD.
Box 768 CATAUMET, MA 02534 USA

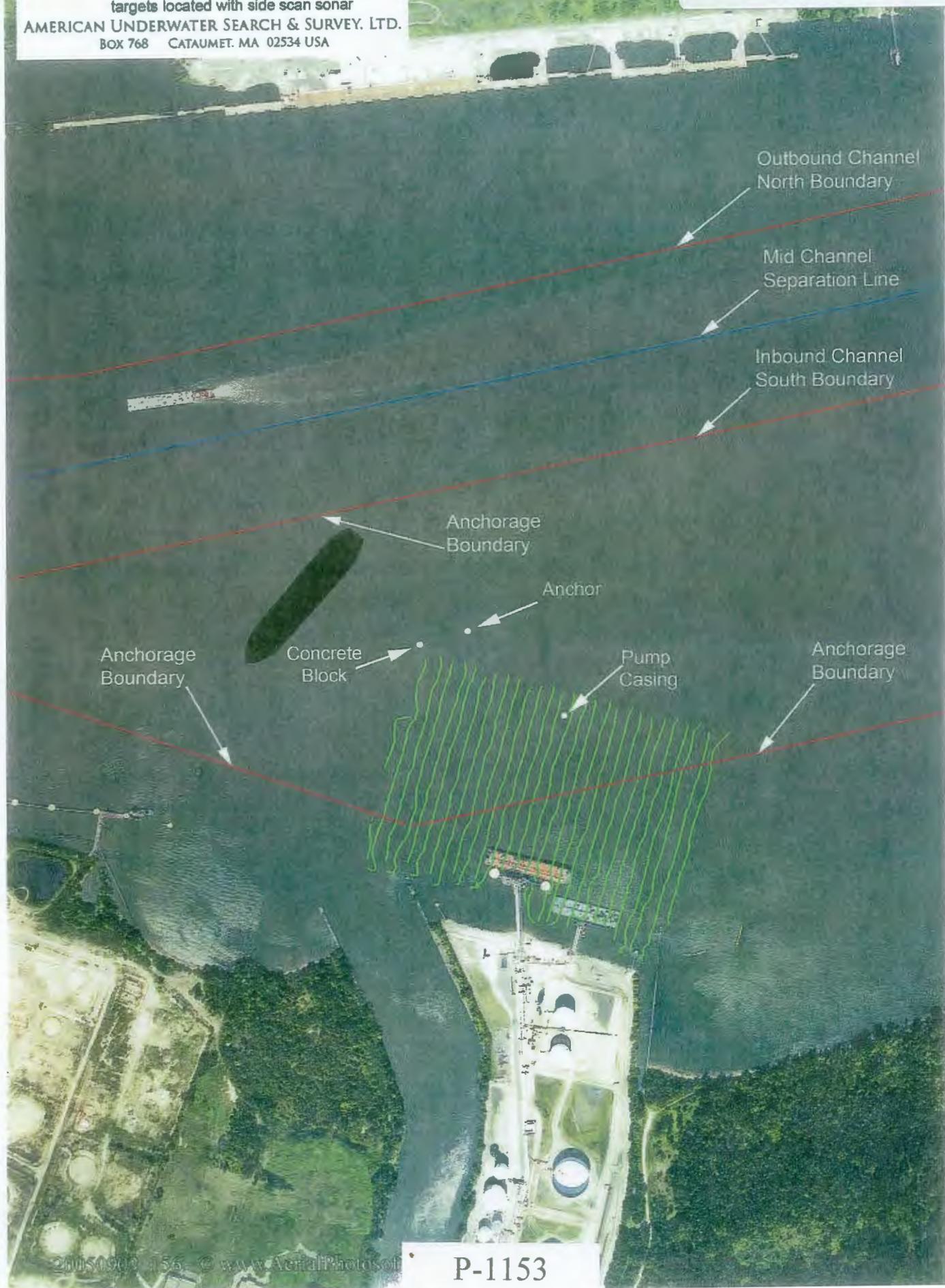


Exhibit B





D-2022
Photo #2



AUSS 108

D-1913



Exhibit C



EMS 1050

11/27/2004

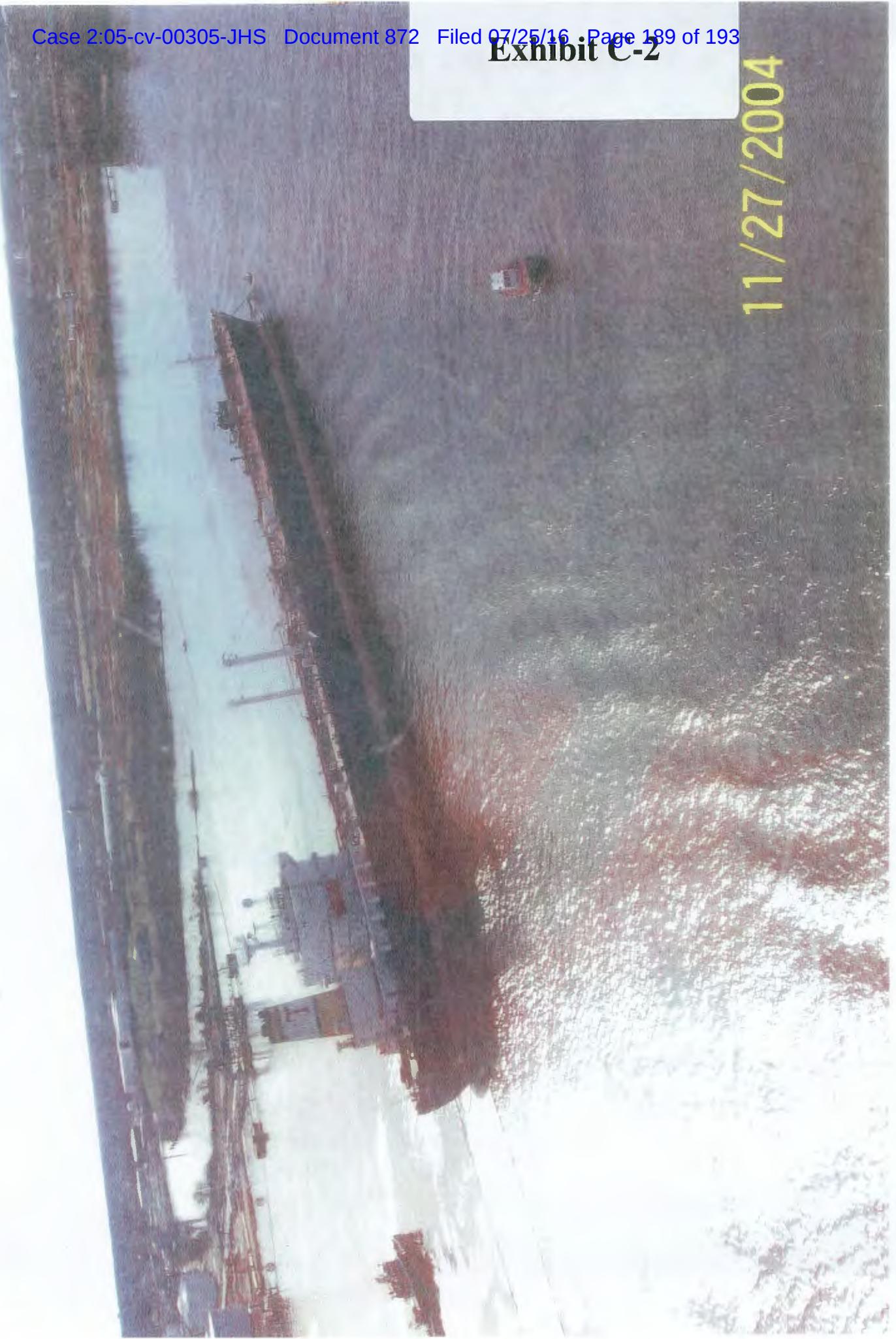


Exhibit D



Exhibit E

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The figure is a map illustrating the movement paths of marine life forms around a damaged anchor. The map shows a complex network of red lines representing the trajectories of different organisms. Key features include:

- Scour - John Fish:** A label indicating a specific area of interest.
- ROB:** A label near the top center of the map.
- A:** A label near the center-left.
- T:** A label near the center-right.
- F:** A label near the bottom center.

A legend on the right side provides key information:

- GPS Antenna:** Represented by a red dot.
- Damage Location:** Represented by a red circle with a cross.
- Anchor:** Represented by a red circle with a compass.

The map also displays time markers along the trajectories, such as 20:48, 20:50, 20:51, 20:52, 20:53, 20:54, 20:55, 20:56, 20:57, 20:58, 20:59, 21:01, 21:02, 21:03, 21:04, 21:05, 21:06, 21:07, 21:08, 21:09, 21:10, 21:11, and 21:13.

GPS Antenna

Damages Location

Anchor

PC Pump Casing

Concrete Block
CB

Model | event | audit?

PAN —
—Press Esc or F10 to exit or right-click to disable shortcut menu.

卷之三

start